

**Over
2000
In
Use**

No core
WITHOUT a question here's the most popular Saw Rig made. Over 2000 in use—and every owner is a loyal Eveready enthusiast right to the core.

Many builders buy the Eveready purely on reputation—and they're always sure to be satisfied, because as one owner says, "There's almost no limit to the things it does."

Due to its variety of operations, it has been called a "portable planing mill." It is a great time and labor saver and it makes every contract more profitable.



592
1064
5

EVEREADY SAW RIG

*"Known From
Coast to Coast"*



*Liberty
Bonds
Accepted
in
Payment
at Full
Face
Value*

It joints, bores, sands, rip-saws, cross-cuts, jig-saws, rabbets, bev-els, mitres, tenons and grind's. Light, yet strong—built on qual-ity and moderately priced.

Get our "Book of Evidence" and find out who owns an Eveready near you. Write today.

OSHKOSH MFG. CO.
103 Amber Street OSHKOSH, WIS.

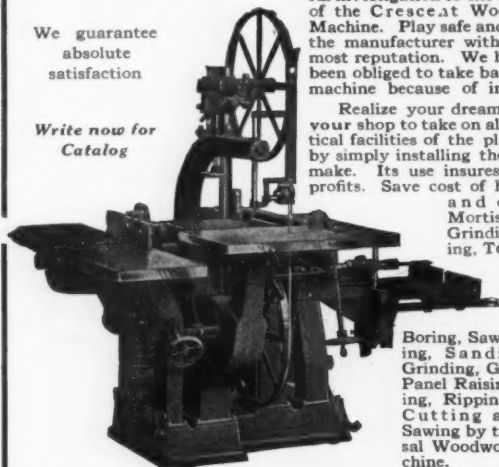


Look! Before You Leap

You buyers of woodworking machines—look before you leap. Do not spend your hard earned capital without—first giving careful investigation to the reputation of the Crescent Woodworking Machine.

We guarantee
absolute
satisfaction

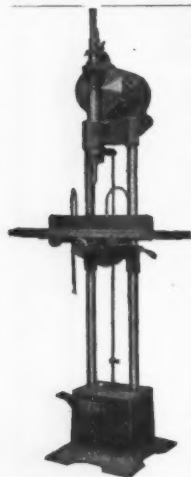
Write now for
Catalog



Realize your dream—compel your shop to take on all the practical facilities of the planing mill by simply installing the Crescent make. Its use insures increased profits. Save cost of hand labor and do your Mortising, Knife Grinding, Dadoing, Tenoning.

Boring, Sawing, Jointing, Sanding, Disc Grinding, Grooving, Panel Raising, Resawing, Ripping, Cross Cutting and Band Sawing by the Universal Woodworking machine.

THE CRESCENT MACHINE COMPANY
224 Main Street Leetonia, Ohio



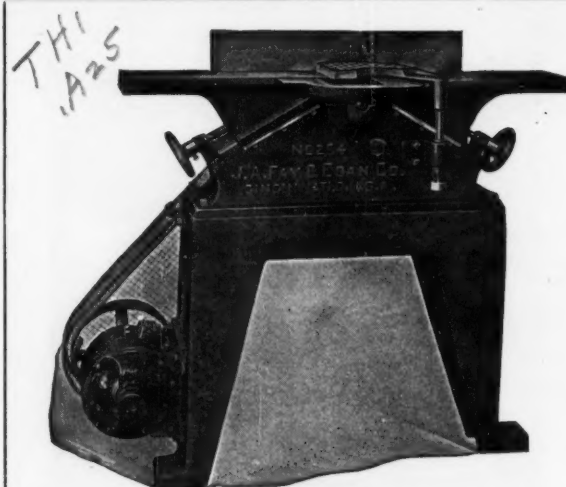
SUPERIOR HOLLOW CHISEL MORTISER and BORING MACHINE

SPEED and ACCURACY

account for the rapidly growing popularity of the SUPERIOR. This picture shows the Style C.F., also made without motor, with countershaft on base for belt drive. Style C.V. has vertical motor direct-connected to bit shaft.

WRITE TODAY FOR
FREE TRIAL

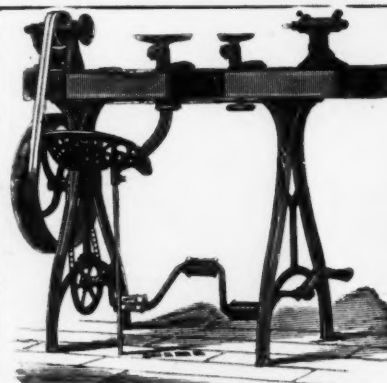
Warren W. Morse, The Low-Priced
1308 West Lake St. Mortiser
Minneapolis, Minn.



—a really practical Carpenter's Hand Planer —bench or pedestal—with or without motor

DON'T buy a toy, get a real machine: 6½-inch safety head, thin air hardened steel knives, adjustable bevel fence, removable steel lips, rabbeting arm, pedestal that gives your feet clearance; easy to keep clean under the machine; a practical time-saver and money-maker. Write for Bulletin H-7.

J. A. Fay & Egan Company
545-585 W. Front St., Cincinnati, O.



COMPLETE OUTFIT

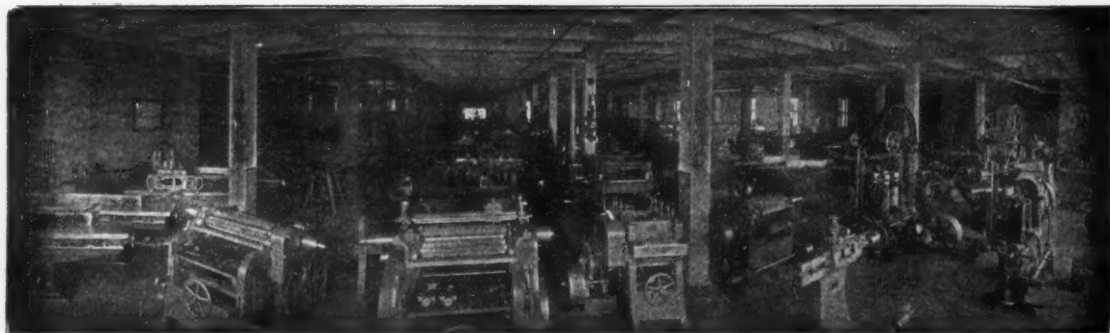
Hand and Foot-Power
MACHINERY

Our No. 3 Wood Turning Lathe can be speeded from 1,000 to 2,000 revolutions a minute with perfect ease. Stopped or reversed at will of operator.

Write for Particulars

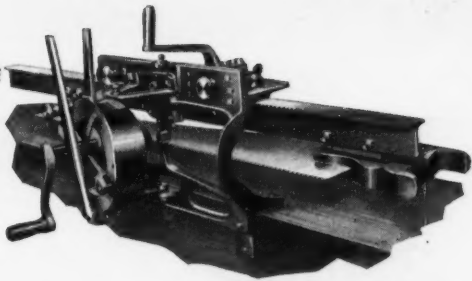
W. F. & J. No. Barnes Co. 74 RUBY ST.,
Rockford, Ill.

Write
for
catalogue
showing
full line of
Wood
Working
Machinery
for
Carpenters
and
Builders.
Also
Bargains
in second
hand
Machinery.



CHICAGO MACHINERY EXCHANGE

1215-1223 WASHINGTON BOULEVARD
CHICAGO, ILLINOIS



THE KEIL HAND SAW FILING MACHINE is receiving a great deal of attention in the building field now. It is because it is producing such good results. It is sharpening hand-saws so they will cut true and smooth. You can appreciate what this means for work like windows, or door-cases, or any kind of fine trimmings in hard or soft wood.

The Keil will file any hand-saw—stiff or limber back—with teeth numbering from 4 to 12 teeth to the inch. It operates in such a manner as to correct all irregularities—all cutting points are set in perfect line, all teeth are made the same length.

The Keil machine requires no special skill to operate. It is fully guaranteed to do first-class work. Try it out.

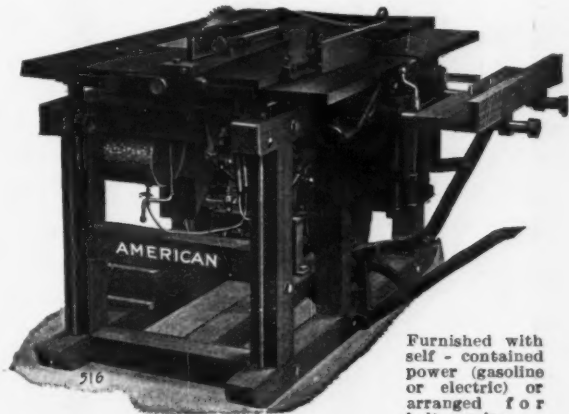
Return it, get your money refunded if it is not as represented. Our descriptive circular will tell you all about it. Get the details of our "easy payment" terms, too.

A discount will be allowed to the first carpenter in each town who orders one.

Keil-Dedlow Mfg. Co.
Plainview, Nebr.

Buy a Wood-Worker that will be a Per- manent Investment

You're not buying a variety wood-worker just for this month, or even for this year. You're putting money into it as a permanent investment that will pay good dividends indefinitely. Then look carefully into the service qualities of the wood-worker you buy.



Furnished with self-contained power (gasoline or electric) or arranged for belt service.

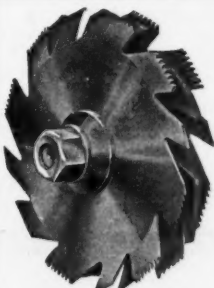
"AMERICAN" VARIETY WOOD-WORKERS

are built with the idea of being permanently serviceable, continuously profitable. Besides bringing you all the functions that you can get in any woodworker, an "American" will bring you the splendid "American" quality which makes for long service, big output, easy operation, low up-keep costs.

Send today for bulletin 67

American Saw Mill Machinery Co.

1360 Hudson Terminal
NEW YORK CITY



Patented Nov. 29, 1892.
Feb. 10, 1910.



Showing position of cutters on mandril.

Our No. 34 Catalog sent on request. Describes full line of tools for saw rig.

For Your Saw Rig Huther Bros. Dado Head

will cut perfect grooves, any width, with or across grain. It consists of two outside cutters and enough inside cutters to make the desired cut.

The Head comes to you ready to use and guaranteed to do your work satisfactorily.

Ten days' free trial at our expense.

This cutter head can be used on the saw table. Knives are adjusted by headless set screws and are held by dovetailed slides and bolts. Runs like a solid cutter. Any shape knives made to order.



Patented Dec. 30, 1910.



Grooves cut with Huther Dado Head.

HUTHER BROS. SAW MFG. CO.
1101 University Ave. Rochester, N. Y., U. S. A.



FALL IN!

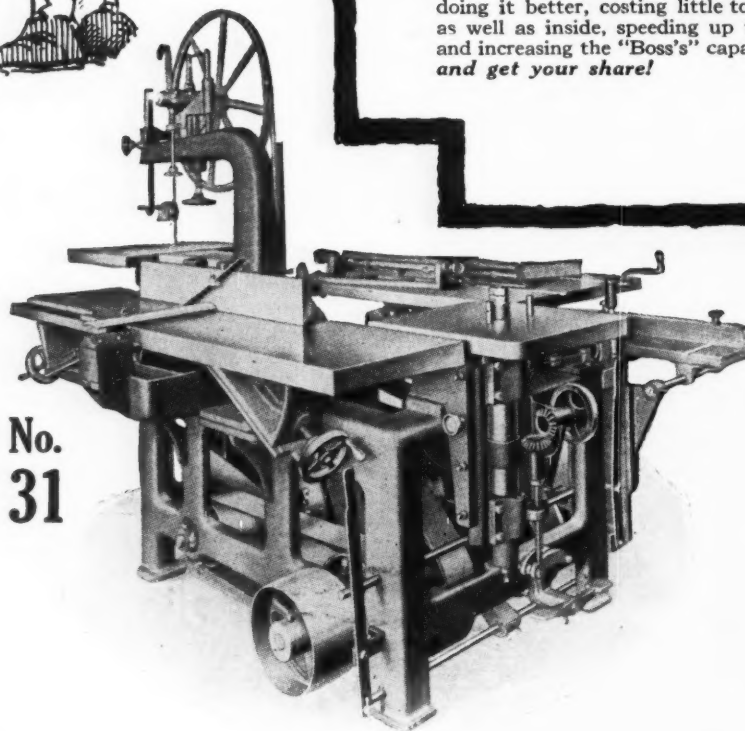
“One of our salesmen said that to a builder. He answered: ‘Fall in—eh? Why? Looks like ‘fall out’ for builders, to me! Reminds me of that sad tune about dropping in the ranks, falling in the line, one by one our heroes go. That’s the kind of ‘falling in’ you refer to, isn’t it?’”

And of course he told him NO.

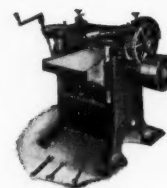
Why is this the time to “fall in” and step lively to keep up with the progress procession?

Because before you know it **you’re** going to be so darn busy that you won’t know whether you are coming or going—and that is a fact. You’re going to get a taste of that gigantic sum that is now being spent in this country by Uncle Sam and his Allies. You’re going to have special demands on you for industrial buildings. You’re going to have to work lively—get through quickly—and you can profit well.

BUT—labor will be mighty scarce and high. No foreigners arriving. Men being daily pulled out of the shops, and from the farms, for our new armies. How—answer us!—**how** are you going to successfully handle your business. There is just one answer and that is “machinery to take the place of men.” We have scores of “FAMOUS” machines that are doing it right now—saving labor, doing the work five times faster, doing it better, costing little to operate, in use out of doors as well as inside, speeding up the manipulation of lumber and increasing the “Boss’s” capacity and profit. **Hop to it and get your share!**



No.
31





PREPARE!

Prepare for an even greater shortage of men. Prepare for a bigger business. It seems like a paradox but it is the truth to say that the way to prepare for one is to get ready for the other.

It is your duty to operate your business so that just as many men as possible will be available for the service of our government. It is your *duty* to make a profit because Uncle Sam doesn't want failures among those who remain at home.

We know hundreds of builders—and men in other trades, too—who are doing next to nothing but whistle for courage. Courage for bigger accomplishments doesn't come running like a pup when you whistle. The only way to get the nerve for the job is to *start doing it!*

Haven't you the ability to put over a howling big success right now when this opportunity is before you? Sure you have. You know it. Then *start* for bigger success right now by *starting* the coupon on this page.

Equip a shop for winter work. Buy a portable machine to save labor on the outside jobs. When you buy one FAMOUS universal for instance, and thereby make it possible for four men to enlist by dispensing with their time, isn't that a pretty big service? We say so. It is.

The only way to keep the home fires burning till the boys come home is to saw wood steadily! And you can "saw" some "wood" on a FAMOUS woodworker. PREPARE for a whale of a business—prepare *now*.



SIDNEY - TOOL CO. SIDNEY, OHIO.

If the following coupon (and margin) don't allow you enough room for your questions—write us a letter.

SIDNEY
TOOL
COMPANY
Sidney, Ohio

Gentlemen:

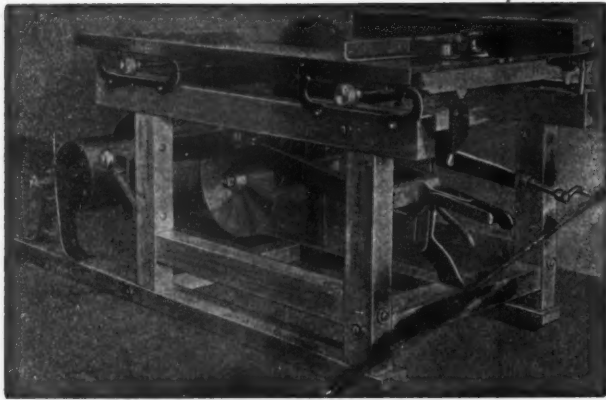
I want a copy of catalog No. 12.

I am interested in

(Machine).....

Name.....

Address.....

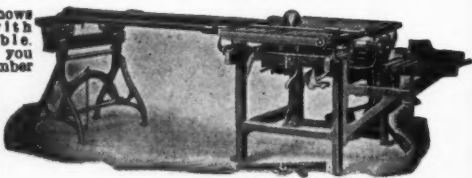


**NOW IS THE TIME TO GET A
BEACH
DOUBLE ARBOR RIP AND CUT-OFF MACHINE**

Get this money-maker on the job. This portable wood-worker will handle all your fine sawing, as well as your dimension stuff. Either gasoline engine or electric motor drive. Has our patented rolling table, making it the most efficient machine on the market. Don't delay—make this year the most profitable and successful of your career. Write for descriptive catalogue.

BEACH MFG. CO., Montrose, Pa.

This view shows extension with rolling table. This allows you to handle lumber up to 30 ft. and slides easily with 1000 lbs. weight in it. Looks instantly for ripping or beveling.



QUICK ACTING *The Taylor* SELF LOCKING

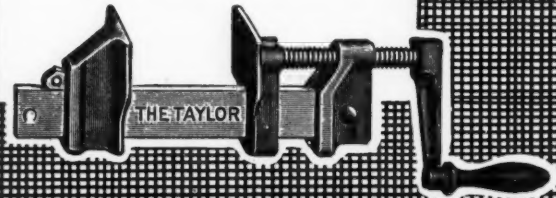
Clamps

**An Investment
Not an Expense**

The quickest and strongest clamps made. That's why they're the standard in U. S. Government Works and in such concerns as General Electric Co., Singer Sewing Machine Co., Victor Talking Machine Co., etc.

We can PROVE it in your own shop. Write today.

James L. Taylor Mfg. Co.
Poughkeepsie, N. Y.



100 Lafayette St.,
NEW YORK

THE JAMES SWAN COMPANY, Seymour, Conn



Manufacturers of all kinds of BITS, CHISELS, DRAW KNIVES, GOUGES, GIMLETS, AUGERS, NAIL SETS, SCREW DRIVERS, COUNTER-SINKS, BORING MACHINES and EXPANSIVE BITS.

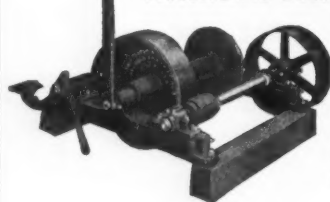
Buy only Carpenters' Tools bearing the Trade Mark which stands for Quality.

Awarded Medal of
Honor on
Mechanics' Tools
at Panama-Pacific
Exposition.



"Reliable Erie" Hoists

Attention Contractors & Builders



Labor is getting scarcer and more expensive every day. It will be to your advantage to get
A RELIABLE ERIE HOIST
to do your heavy lifting. Not an expense but a good investment.

Write for booklet

The Erie Hoist Company
26th & Holland St., Erie, Penna.

PLANING by ELECTRICITY

ENDS HARD LABOR

Use the **WALLACE BENCH PLANER**

MOTOR or BELT DRIVEN

Send for Folder



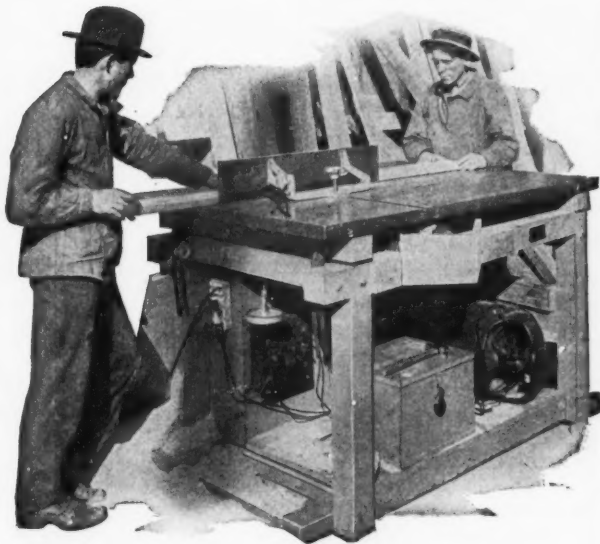
This is the greatest little device known to all mechanics as a time and labor-saving machine. By simply connecting with any electric light socket you can start it working in a second. Heavy cuts can be made in both hard and soft wood—and no sanding is necessary. It is equipped with safety guards and all modern devices.

J. D. WALLACE & CO.

4-inch Knives
Weight 50 lbs.
Portable

1405 W. Jackson Blvd.
CHICAGO, ILL.

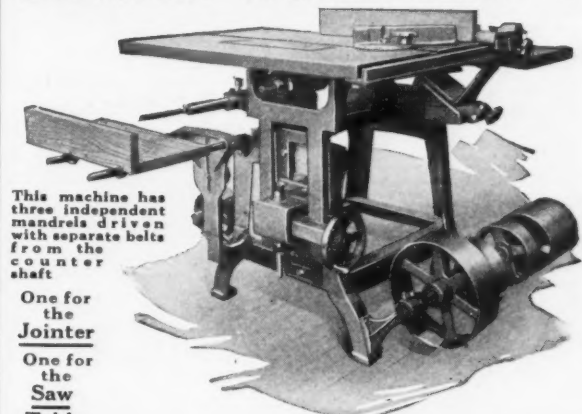
C. H. & E. PORTABLE SAW RIGS



Eight Complete Sizes Portable Saw Rigs.
Write for Catalog

C. H. & E. Manufacturing Co., Inc.
322 Mineral Street Milwaukee, Wis.

The "Standard" Contractors' Universal Woodworker No. 1



This machine has three independent mandrels driven with separate belts from the counter shaft

One for the
Jointer

One for the
Saw
Table

One for the
Boring
Attachment

Abernathy, Texas, Feb. 12, 1917.
Standard Machine Tool and Supply Co.,
Kansas City, Mo.

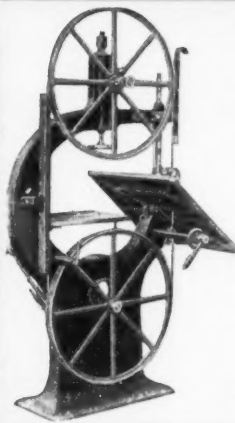
Dear Sirs:—I looked over several catalogues of woodworkers before I selected the No. 1 "B." but I thought when I selected it that it would be the best and handiest machine, and after using it for 3 months I am of the same opinion, for it sure is all right and does fine work.
Yours truly, H. E. RANTZ.

Five Machines at the Price of One

8" joints, rip saw table, cut off saw table, boring attachment, drum sander, emery grinder. Does planing, jointing, rabbeting, moulding, gaining, dadoing, ripping, cutting off, mitering, boring, routing, grinding, sanding.

Write for catalogue and prices on our full line of up-to-date wood-working machinery.

Standard Machine Tool & Supply Co.
First and Main Kansas City, Mo.
Established 1896

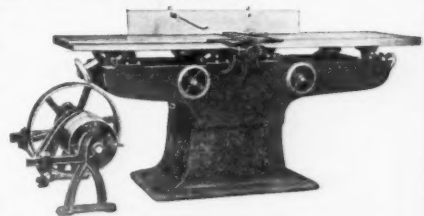


Get Our Attractive Catalog Covering

The Silver Line of Band Saws, Jointers Saw Tables, Swing Saws, Etc.

The simplicity of design—the light and easy running qualities and the safety in operation of Silver's splendid line of Woodworking Machines appeal to anyone looking for fast, strong, well-made machines for modern woodworking shops. They are reasonably priced for such high quality machines. For full particulars write

The Silver Mfg. Co., Box 345, Salem, Ohio



Miller's Lock Mortiser TWO MINUTES

Will cut an opening in a door for a mortise lock ;
IMPROVED AND UP-TO-DATE
cuts true in any kind of wood for any size lock from 1" to 1 1/2" thick. Easy to operate; durable in construction. Builders use it everywhere.



Sent subject to trial.

A. W. Miller Mfg. Co.
Riverside, Calif. Cincinnati, Ohio
Our Butt Mortiser and Rule Gauge for 75c., Postpaid

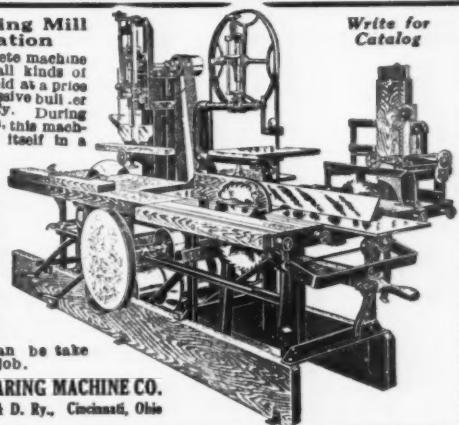
Parks Planing Mill Combination

The most complete machine for getting out all kinds of mill work, and sold at a price which any progressive builder can afford to pay. During the present season, this machine will pay for itself in a couple weeks.

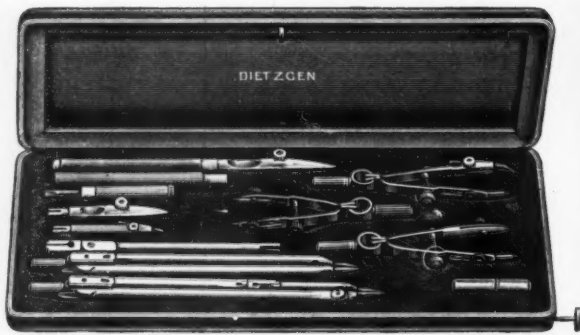
Rip saw, 12" jointer, 22" band saw, Swing cut off saw, Shaper, Upright mortiser, Tenoner, Sand disk.

All ready for instant use without having to make any changes. Machine can be furnished with engine mounted in rear so it can be taken right out on the job.

PARKS BALL BEARING MACHINE CO.
Fergus St. & C. H. & D. Ry., Cincinnati, Ohio



Write for
Catalog



NATIONAL DRAWING INSTRUMENTS

Manufactured in this country and made of cold rolled German silver and highest grade steel. Excellent workmanship and finish. Various case assortments. Prices moderate.

Will meet the precise requirements of mechanical drawing, and will appeal to schools because of their durability and reasonable cost.

Send for Descriptive Booklet

EUGENE DIETZGEN CO.

Manufacturers

Chicago
New Orleans

New York
Pittsburgh

San Francisco
Philadelphia



NICHOLLS FRAMING SQUARES

Gives all lengths and cuts of all rafters for sixteen pitches of roof

The ORIGINAL and MOST COMPLETE

square on the market today

Send For Our Little Book Explaining This Rule

NICHOLLS MFG. CO., Ottumwa, Iowa

A POPULAR PRICED STEEL TAPE

LUFKIN "BANNER"

Accurate, standard size steel line 25 to 100 ft., put up in metal lined auto leather case. A tool you need at a price you can afford. Ask your hardware man.

Measuring Tapes, Boxwood and Spring Joint Rules
Send for Catalog

THE LUFKIN RULE CO.

Saginaw, Mich.

106 La Fayette St.
New York



For Laying Out Work

Everyone who lays out work knows the importance of doing things right. You use accurate, well designed tools to insure good results.

Starrett Tools

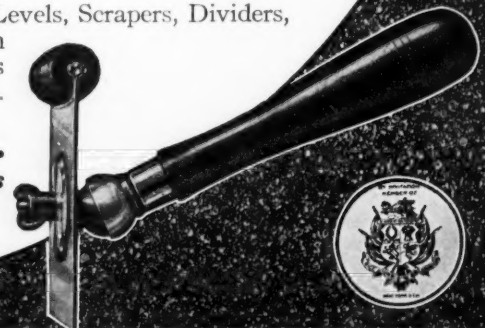
are made for the single purpose of making accurate work easy. In addition to that the Starrett line offers you a "tool for every job."

Catalog No. 216 will help you pick the Levels, Scrapers, Dividers, Stair Gages, Scratch Gages, Combination Squares, Combination Tools and others that you need for work that must be right.

The L. S. Starrett Co.
The World's Greatest Toolmakers
ATHOL, MASS.

NEW YORK LONDON CHICAGO

42-704



INTERLOX RULE

ACCURACY AND CONVENIENCE

The Interlox Rule is always ready. There is no guesswork or mistakes with this rule. It makes all the "hard to get at" inside or outside measurements quickly and accurately. Measurements are easy to read. Made in all lengths, from 2 to 8 ft. of selected boxwood, finished with water-proof lacquer and solid brass trimmings.

Ask your dealer to show you this rule, or send 20c per lineal foot and we will ship you one promptly.

DAHL MANUFACTURING CO.

51 E. 42nd Street

Chicago, Illinois



FREE TO YOU

USE our complete house-moving equipment **FREE** for 30 days. Prove to yourself the profits house-moving with our equipment will bring you. You can double the money you are making now with

ALL-STEEL GIANT House-Moving TRUCKS

Made of best Bessemer steel—unlimited guarantee—45 tons capacity. The house-moving contracting business is growing. The man with the right equipment gets the work. Start now and get the cream. Small investment—big profits. Experience not necessary. We help you start. Write now for my plan—**Free Offer** and Catalog "B." E. W. La Plant, Pres.

La Plant-Choate Mfg. Co., 620 Eastlack Ct., Cedar Rapids, Ia.

Let us send you "Successful House-Moving Contractor" Free. Every issue full of helpful, practical advice. Write us now.



Sand's Aluminum Levels

Always Tell the Truth

The standard of accuracy. And not only the most accurate—but easiest to read, even in the dark. Never rusts—cannot warp, split or crack—and are easily handled. The lightest levels made—strong and durable because the greatest strength is placed where most needed. Ask your dealer to show you these levels, and also write for our new circulars showing full size levels.

J. SAND & SONS Originators of Aluminum Levels 1023 - 29 Rivard Street, Detroit, Michigan



It's There WHEN You Want It—

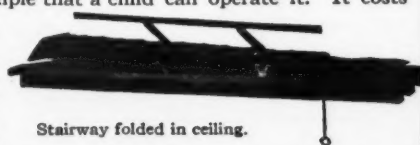


The Bessler Movable Stairway is the only stairs that

can be folded up into the ceiling, leaving the lower floor entirely clear. It is designed to do away with the stationary, space-devouring stairway to attics and lofts, as well as to half stories in bungalows. When needed a light tug on a chain brings it down when stairs are easily rolled down the panel on to the floor. When not in use it is swung up into the ceiling out of the way.

**IT IS THERE WHEN YOU WANT IT
OUT OF THE WAY WHEN NOT IN USE**

So easy and simple that a child can operate it. It costs less than a stationary stairway—bear that in mind. And just think of the space it saves in the valuable lower rooms. Architects, contractors and home builders are invited to get in touch with



Stairway folded in ceiling.

The Bessler Movable Stairway Co.
AKRON, OHIO

"YANKEE"

Ratchet Driver No. 10

**Saves Time
at Every Turn**

Here you have—an easy working ratchet, right hand, left hand (and rigid), a comfortable handle and withal a strong and serviceable driver.



Made in 8 lengths of blade, from 2 inch for small screws, up to 12 inch suitable for all kinds of high power house carpentering.

Your Dealer Can Supply

Let us send you a "YANKEE" Tool Book.

North Bros. Mfg. Co.
Dept. A, Philadelphia, Pa.



Two in one—

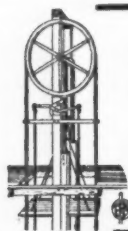
That's what you get when you buy a G. & B. Convertible Level—a Builder's Level and an Architect's Level, too. Complete for \$67.50.

The position of the telescope when used as a transit is normal, not upside down. The construction of the standards are the same as on a regular small transit.

You will be pleased with its appearance of serviceability and its simplicity in design and operation. Remember you have vertical and horizontal adjustments with tangents for both. You can read vertical and horizontal angles both to 5 min.

See our Circular B, which shows many other features; and compare the G. & B. with any other make.

GEIER & BLUHM
5 Front Street Troy, N. Y.



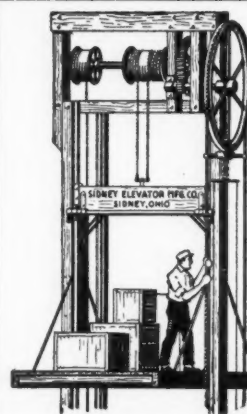
KIMBALL ELEVATORS PASSENGER AND FREIGHT

We manufacture an improved line of Electric, Hand or Belt Power Elevators, Dumbwaiters, Hatch Gates, etc. Send for full information.

Address **KIMBALL BROS. CO.**, 1050 9th Street
Council Bluffs, Iowa

Sedgwick Hand-Power Dumbwaiters and Elevators

Manufactured by Specialists and guaranteed. Send for Catalog and Information.
SEDGWICK MACHINE WORKS 132 LIBERTY ST.
NEW YORK



SIDNEY ELEVATORS

Will reduce your handling expense, and speed up your work.

Our machines are easily installed from our complete plans and instructions which are sent with each elevator.

The Reasonable Cost Will Interest You

Write us today, stating requirements, giving style of machine wanted, size of platform and number of feet travel, and we will quote a money saving price on equipment to serve you well.

SIDNEY ELEVATOR MFG. WORKS
SIDNEY, OHIO

DUMBWAITER COMPLETE \$19.50 READY TO INSTALL

Includes all necessary material, not knocked down—machine, machine timbers, bolts, boxes, car, counterweight, ropes, guide ways, etc., all ready to set in hatchway and erection instructions. Length up to 20 feet. All material guaranteed. Money back if not satisfactory. Write for further particulars.

Highwood Dumbwaiter Co., Grand Ave., Leonia, N. J.



THE COLUMBIA

DUMB WAITERS ELEVATORS
CELLAR HOISTS
JUMPER DISAPPEARING DUMB WAITERS
CHAIN HOISTS, CRANES AND TROLLEYS
SEND FOR CATALOGUE

J. G. SPIEDEL, Reading Pa.

Trunks Lifts for the Modern Home

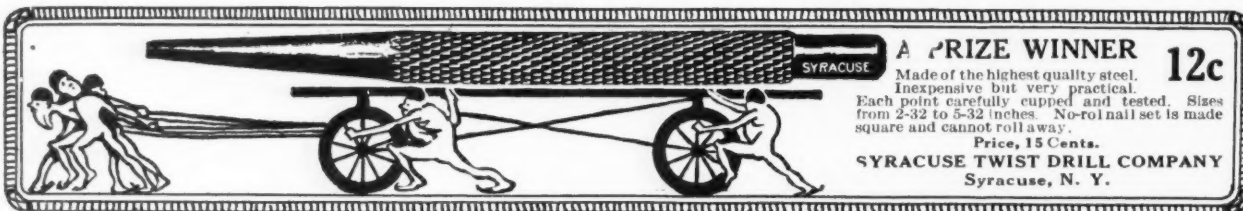
There are many of your clients who would be glad to have a Trunk Lift in the new house—or in their present one for that matter. Trunk Lifts prevent the marring of the stairs, walls and banisters. They save time and many steps. They cost but little more than Dumbwaiters and they can serve as Dumbwaiter also. Send for our Catalog for complete description and prices.

The Storm Mfg. Company
50 Vesey St., Newark, N. J.



CARPENTERS WANTED AS AGENTS

Now is the time to act. Big Money. Ready Seller
Sanitary Automatic Dumbwaiter saves carrying food to and from cellar. Perfectly ventilated; screened openings; finished inside with durable white enamel. Keeps food perfectly. Top lies flush with kitchen floor. You can walk over it. Operates with push button or lever. Also furnished as a Refrigerated dumbwaiter. Assembled complete ready to install. But three hours required to place our waiters in actual operation; old or new homes. Quotations include every needed supply. \$17.46 apiece. Illustrated catalogue.
York Automatic Dumbwaiter Works 639-645 West Market Street, York, Pa.



WHAT ARE YOU DOING TO MAKE YOUR PRODUCT KNOWN?

Forty thousand building contractors, dealers in building materials, architects and carpenters are reading these advertising pages every month. Make your products better known to these buyers by continuous, persistent, memory-refreshing advertising.

KEEP YOUR FLAG FLYING!



Showing
Sun-Shade
Attachment

Try This Aloe Level 10 DAYS—FREE

Easy Monthly Payments If You Buy

Prove the superior quality of the Aloe Convertible Level by testing it out for 10 days. Use it on your every day work laying out buildings, locating foundation piers, leveling up foundations, walls and floors, aligning, shafting walls, piers, etc., for getting angles, or levels anywhere and the hundred and one other things for which you would use a level or transit. Then, if you decide to keep it, you may pay for it in easy monthly payments so small that you will scarcely feel them.

Aloe Convertible Level

is more than a mere level. It is a modified transit permitting double the range of work possible with an ordinary architect's level. Its construction is such that sights above or below the horizontal can be taken, making it the finest instrument ever offered at anywhere near the price. For taking vertical sights the instrument is provided with a special convertible bracket rigidly and permanently attached to the cross-bar thus eliminating the extra time that other instruments require for changing the telescope in position to take vertical readings. The telescope which is fitted with a permanent axis, rests in the bracket bearings and owing to our special constructed clips the instrument can be used for leveling while in

this position if desired, although the bracket clips are easily and quickly released from the telescope axis when levels only are to be taken. The telescope is then set in its normal position in the wyes and you have overcome the old method of attaching and detaching the convertible bracket.

Your Own Time To Pay—No Interest

Remember, you are under no obligation whatever to keep the Aloe Convertible Level. We do not even ask you to promise to buy. But you owe it to yourself to see and try it. If it isn't all you expect you may return it at our expense. If you do keep it, you will find the small monthly payments easier than paying rent for an instrument—and at the end of a few months you will own it—absolutely. There's no red tape about this offer—we ask no embarrassing questions—everything is confidential—we charge no interest. You have practically your own time to pay.

Mail Coupon for Descriptive Circular

It explains the Aloe Convertible Level in detail and shows how easily the man without the training of the engineer or surveyor may secure the same accurate results as the expert. Send your name on coupon or postal for free copy and full particulars of our original, unique and popular selling plan.

A. S. ALOE CO., 621 Olive St., St. Louis, Mo.

Mail Coupon NOW

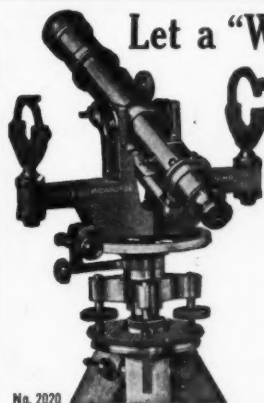
**A. S. ALOE COMPANY,
621 Olive St., St. Louis, Mo.**

Please send free descriptive circular about the Aloe Convertible Level and complete details of your easy payment plan. This request in no way obligates me.

Name.....

Occupation.....

City.....State.....



No. 2020

Let a "White" Control Your Lines and Levels

Hundreds of contractors are letting a "White" Convertible control lines and levels on their jobs. They know a "White" can be relied on. They know a "White" convertible level is accurate, dependable, durable. Why not profit by their experience and let a "White" control your lines and levels? You'll never regret it. Send for complete description and details of trial offer.

DAVID WHITE CO., Inc.
419 E. Water St., Milwaukee, Wis.



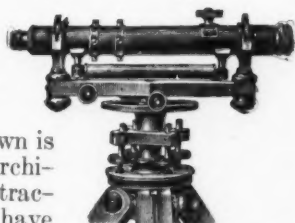
From Level to Transit
in a Few Seconds

For
Builders,
Contractors
and
Architects

Write for
Catalog of
Convertible Levels,
Drawing Ma-
terials, etc.

New York
Blue Print Paper Co.
102 Reade St., New York

It pays to be sure



Our Dumpy Level shown is made for the use of Architects, Builders and Contractors. It will pay you to have one and avoid mistakes which may prove costly. It is light in weight—thoroughly up-to-date in its construction—and sold at a reasonable price.



Send for Catalog TODAY
KOLESCH & COMPANY
138 Fulton Street New York

Useful as the Blue Print

"Couldn't imagine myself without No. 350 BECKMANN."

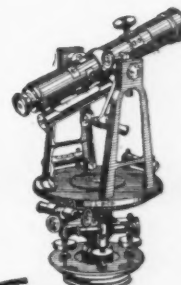
"The builder has a lot of worries, but this little transit settles half of them."

"I'd as lief start building minus the Blue Print as get along minus the Beckmann Builder's Transit."

—Opinions of a few users.

Costs \$85.00. Means accurate construction from cellar to roof.

Made by L. Beckmann Co.
500 Adams St., Toledo, O.





Most of You Mechanics Use

DISSTON SAWS AND TOOLS

Do You?

Ask any hardware dealer what saw the mechanic prefers and the chances are he'll tell you the DISSTON. Most mechanics DO use the Disston — a recent investigation again proved that fact.

The endorsement of the majority of skilled artisans, men whose livelihood depends on tools, ought to be a pretty safe guide.

The chances are more than even that you use the Disston now; but if you don't, try them next time.

Henry Disston & Sons, Inc.
Philadelphia, U. S. A.

BRANCHES:

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Memphis
San Francisco
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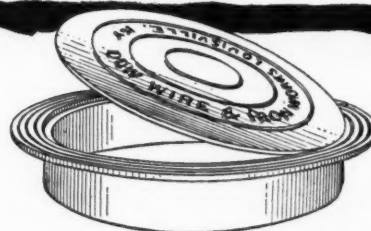


ADZE

Wouldn't you rather pay a few cents more and get the best Adze made?

Sure you would.

Write for our new Catalogue
THE L. & I. J. WHITE CO.
10 Columbia Street BUFFALO, N. Y.



**Write Us for Estimates
on Builders' Iron Work**

Window Guards, Elevator Enclosures, Elevator Cabs, Hangers, Ornamental Iron, etc.
DOW WIRE & IRON WORKS, Inc., LOUISVILLE, KY.

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MANUFACTURERS
OF

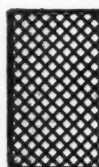
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In Sheets, Plates, Rolls

CORRUGATED COPPER CONDUCTOR PIPE

Copper Nails, Copper Rivets, Conductor Pipe, Eaves Troughs, Elbows, Shoes, Mitres, Soldering Coppers, Gaskets, Etc.

Wire Window Guards



Counter Railings
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to get our catalog and full information for your own benefit!

The Cincinnati Mfg. Co., Cincinnati, Ohio



We will send you this machine for 10 days' FREE TRIAL. If you don't like it ship it back.

Write for Our Prices and Special Offer

Fox Supply Co.
Brooklyn, Wis.

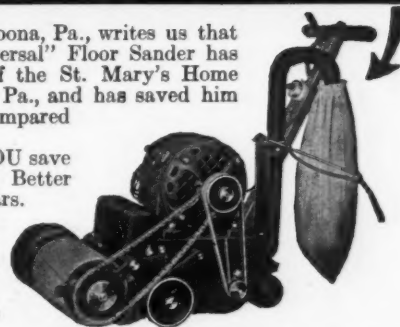
Saved \$400.00 on One Job of Floor Surfacing

J. C. Ivory of Altoona, Pa., writes us that the "American Universal" Floor Sander has finished the floors of the St. Mary's Home for Girls at Cresson, Pa., and has saved him over \$400.00 as compared with hand scraping.

How much will YOU save on your next job? Better write us for particulars.

American Floor Surfacing Machine Co.
515 So. St. Clair St.
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"The Oldest Concern in the Business"




The IMPROVED Rapid Floor Surfer

will surface right up to the wall or baseboard without the use of Edge Roller. Just the machine you would want for surfacing all kinds of wood floors, whether old or new. Will smooth down rapidly and easily all joints or warped edges. Perfect results guaranteed. More than 20,000 of our machines now in use. Guaranteed against defect in material and workmanship for five years.

Send for our Free Trial Offer. It will interest you.

M. L. Schlueter
225-27 W. Illinois St., Chicago, Ill.

Made in several sizes

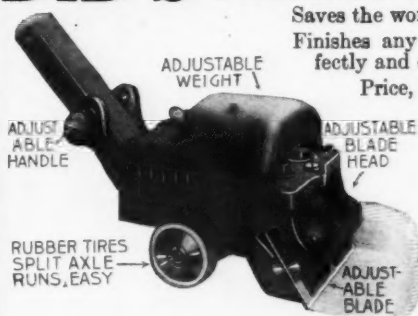
DID'S MONEY-BACK-IF-YOU-WANT-IT FLOOR FINISHER

Saves the work of three men. Finishes any wood floor perfectly and quickly.

Price, only \$24.50, cash with order.

Money back any time it fails to satisfy you.

H. P. DIDRIKSEN
COLUMBUS, OHIO
1826 Summit Street



FREE to YOU—For 10 Days

The Triple "A" Spring Driven Floorsmoothen



To enable you to try our machine out, and learn for yourself its many superior qualities, we will send you one of our BRAND NEW Triple "A" SPRING DRIVEN Floorsmoother for 10 days' free trial, freight prepaid. The Triple "A" is the only floor scraper on the market equipped with a SPRING MOTOR DRIVE—the only convenient motive power. Requires neither fuel nor current—always on tap when wanted. It lessens the work fully two-thirds. Only one motion required—the push forward. This winds the SPRING MOTOR which automatically stops the machine and sends it back on the outgoing stroke.

Will save its cost on one job. Write today for full particulars regarding our special trial offer.

Triple "A" Machine Co., Room 100, 4125 Ravenswood Ave., Chicago, Ill.

Stop Making "Borderwork"

around your baseboards—which results when you use a narrow edge roll attachment, as its work is uneven and looks different from the rest of the room when finished. Get the same uniform work right up to baseboards that you do throughout the room by using

The Improved Type Automatic Ball-Bearing Electric Floor-Surfacing Machine

The sanding roller is mounted so one end extends just beyond the side of the machine—easily adjustable to either side so that the wall all around the room can be reached. And the Little Automatic Electric Surfacing Machine (shown below) is a wonder for removing old varnish from desk tops, tables, counters, etc., as well as for dressing up new work.

FREE TRIAL OFFER on either of these machines. Write today for full information.



Wayvell Chappell & Company
356-358 W. Madison Street Dept. D Chicago, Illinois
Phone Franklin 4160

1853 **Buck Bros.** 1917



Fine Beveled Edge Shank and Socket

Chisels

Tang and Socket Butt Chisels

Plain and Beveled Edges

Send for illustrated Catalog

Buck Bros., Millbury, Mass.

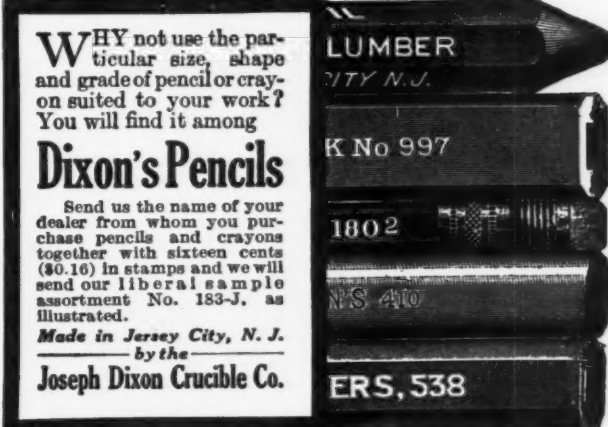
WHY not use the particular size, shape and grade of pencil or crayon suited to your work? You will find it among

Dixon's Pencils

Send us the name of your dealer from whom you purchase pencils and crayons together with sixteen cents (\$0.16) in stamps and we will send our liberal sample assortment No. 183-J, as illustrated.

Made in Jersey City, N. J. by the

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LUMBER CITY N.J.

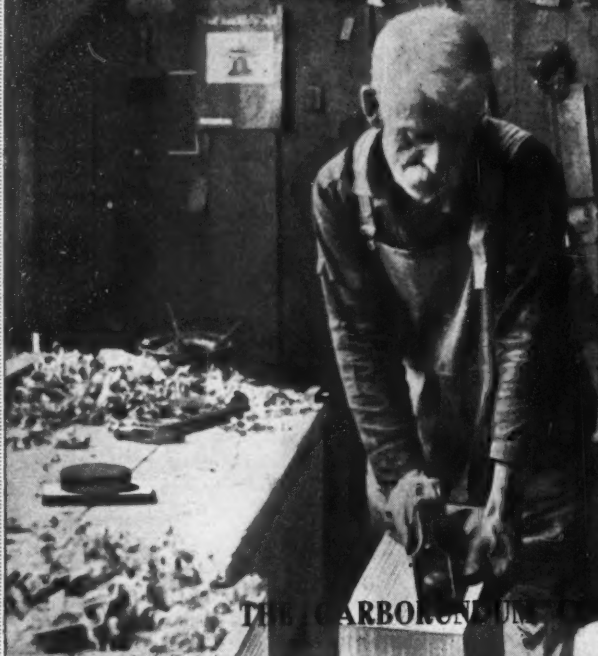
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From the Grindstone Days to the Age of Carborundum



FOR nigh on to forty-five years I have been pushing a plane, and I have often since wished that we had Carborundum Sharpening Stones in the old days. Many a weary trip to the grindstone they would have saved me. ¶ There is nothing like them for quick, clean cutting—nothing like Carborundum for keeping your edge tools always in working shape—they don't fill or glaze and they last for years.

Ask your hardware dealer about the round combination Carborundum Bench Stone at \$1.25

THE CARBORUNDUM COMPANY, NIAGARA FALLS, N. Y.

Caldwell Sash Balances Uniform Mortises

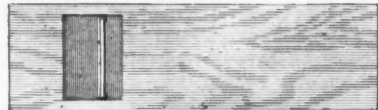


For use in all classes of new work. Box frames unnecessary. Mortises cut at mill reduces cost of installing. Counterbalance sashes perfectly unaffected by atmospheric conditions. Cheapest method for modernising old window, as alterations in sashes and frames are not necessary. Sashes should be weighed before ordering.

Write for Circular
CALDWELL MFG. CO.
2 Jones St. Rochester, N. Y.

"The Plane with a Wood Bottom and Iron Throat"

**GAGE
SELF-SETTING
PLANES**



The plane that can be changed from a SINGLE iron to a DOUBLE iron plane in 2 seconds; that is, from fine-finish work to roughing work instantly, or vice-versa. If your dealer does not have them in stock for your inspection ask him to order Gage Self-Setting Planes for you. A postal will bring you descriptive circular and list prices.

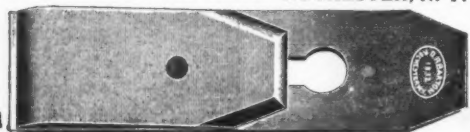
GAGE TOOL CO., Inc., "A", Vineland, N. J.

*"The Gage Self-Setting Plane will not stutter, stammer or chatter."
It don't even hesitate."*

BARTON TOOLS

The steel capped double plane iron illustrated is one of the celebrated Barton Tools. For many years these tools have been known for their unequaled, keen, hard, smooth-cutting edges. Barton Tools last a lifetime and give satisfaction to the end. Ask your dealer to show you our tools or send direct for catalogs and free story book—True Stories. Specify "Carpenters Catalog."

MACK & COMPANY 100 BROWNS RACE
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Carpenter—Contractor— Builder and Material Dealer

Write today. Now is the time to take up an agency proposition for the largest and most complete line of Order-Made

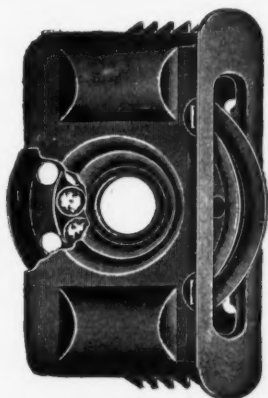
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on the market. Turn your idle hours into money. We supply you with a complete agent's outfit consisting of models, contract blanks, advertising matter, etc. We give exclusive agencies to the ones who make good. No regular agencies established in towns less than 10,000 population. We have some excellent territory still open

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No. 10 Ball Bearing

"Grand Rapids" Ball Bearing ALL STEEL Sash Pulleys

Fasten Automatically
No Nails—No Screws
Just Bore Four Holes

The automatic saw tooth fastening feature and the simple and easily made mortise will save in labor enough to pay for the pulleys.

The bearing contains eleven $\frac{1}{4}$ -inch Solid Steel Balls running in lubricant, insuring a noiseless, easy running wheel under any load.

NOISELESS—EVERLASTING
Write for **FREE** Samples

Fifty Different Styles

Grand Rapids Hardware Co.

Manufacturers

158 Eleventh Street - Grand Rapids, Mich.

Northwest

* BUILDING MATERIAL EXHIBIT *

Look Before
You Build

ECONOMY

It's Free to
See

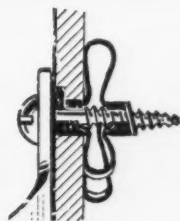
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Splendid downtown headquarters for Minneapolis firms

Ideal arrangement for offices of Agents of out-of-town firms

200 Permanent Exhibitors on one floor
Northwest Building Material Exhibit
Entire Fourth Floor, First National Soo-Line Bldg.
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Hold—

that is the word that identifies itself with

Ankyra Ankor Bolts

It does not matter what kind of a wall—hollow or solid, lath, stone or hollow tile—the wall is no stronger than the hold of the **ANKYRAS**.

Fixtures or grounds fastened with **ANKYRAS** are secure. They never loosen. Yet the fixtures can be removed or changed any time and as often as you wish without affecting the hold of the **ANKYRA**.

Write now for full particulars and sample bolts—no obligation, of course. Or ask your dealer to show you **ANKYRAS**.

Ankyra Manufacturing Company

151 Berkley Street, Wayne Junction
PHILADELPHIA

Self-
Riveting

Self-
Adjusting



**Ankor
Bolts**



Put an End to His Barn Door Troubles

Barn and garage doors which balk, stick and jump the track are an everlasting nuisance. Big heavy doors will *never* balk, *never* stick, *never* jump the track and will always run smoothly and easily if equipped with

The PITTSBURGH Door Hanger

There is a vertical adjustment which takes up all the sag, leaving plenty of clearance between door and floor. Then there is a lateral adjustment by which the space between the door and wall can be increased or decreased at will.

The trolley track in which this hanger runs is covered on top, sides and ends so that snow and ice cannot reach the carriage and wheels and interfere with their easy operation. The track is weather-proof and bird-proof.

The PITTSBURGH Door Hanger and Track are made substantially of tested iron or steel and can be installed easily and quickly on any type of sliding door. Whether building or repairing barns, garages and farm buildings it will pay you to hang the doors with this equipment. Ask your dealer for McKinney's PITTSBURGH Door Hanger and Track. Write now for copy of interesting booklet "H11" and Builders' Catalog.

McKinney Mfg. Co.
PITTSBURGH, PA.

ECONOMY

DURABILITY

Pullman Unit Sash Balance

Cost Less Than
Cords, Pulleys
and Weights

Made entirely of pressed steel, smooth running, unbreakable and practically noiseless.

A carpenter can install twice as many windows with Pullman Unit Sash Balances per day as can be fitted with cords and weights—a saving in labor of 100 per cent. Over six million in use. Recommended by hundreds of Architects. Approved by Fire Underwriters Laboratories.

You can save money by learning more about Pullman Unit Sash Balances. Write today for illustrated Catalog with blue prints.

PULLMAN MFG. COMPANY
10 Industrial St. Rochester, N. Y.

Pullmanize Your Windows

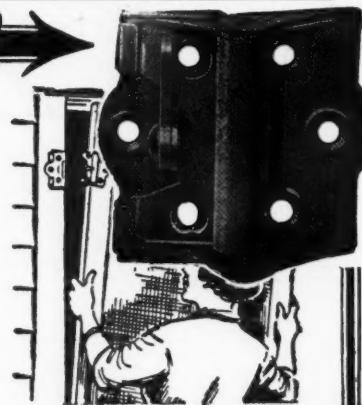
JIFFY!

Just the hinge your clients have been looking for. Once installed, the Jiffy Hinge enables the housewife to put up or take down the screen doors or windows without the use of screws or tools of any kind.

Ask Your Dealer to Show You a JIFFY HINGE

They are inexpensive, made in a variety of finishes and are sure to make a neat satisfactory job. If your dealer cannot supply you, write for samples and prices.

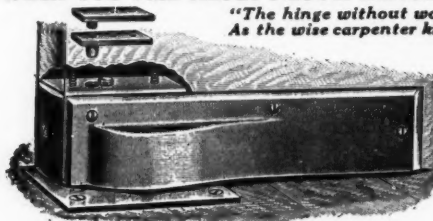
ROCK CITY MFG. CO.
Wabash, Ind.



Say Shelby "CHIEF"

When You Talk About FLOOR HINGES

"The hinge without woes,
As the wise carpenter knows."



Manufactured by
The Shelby Spring Hinge Co., Shelby, O.
Sold Everywhere

Bishops Refined "Greyhound" Steel Saw—A Masterpiece

Of the Saw Maker's Art. We are proud of its quality and guarantee it to cut faster and run easier in all kinds of wood, to hold its sharpness and set longer than any other good saws.

It's the Your-Money-Back-If-Not-Satisfied Saw

30 Days' Trial Will Prove Our Guarantee

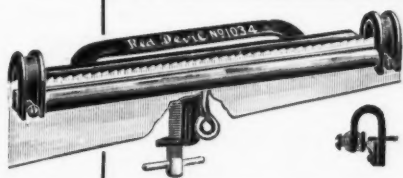
The "Greyhound" is the result of years of experimenting to originate a purity of steel with fine grain and tough body.



	Made in both Straight and Skew Back						
Length	18	20	22	24	26	28	inches
Each	\$2.85	\$3.00	\$3.15	\$3.30	\$3.50	\$3.85	Net

Packed One in a Box

GEO. H. BISHOP & COMPANY
LAWRENCEBURG, IND.



"Red Devil" Carpenter's Adjustable Saw Vise *Saves Your Saw — Pays for Itself*

Solid steel—noiseless rubber jaw—eccentric lock. Instantly clamped anywhere or folded into tool kit. Files hand or rip saws. Sample \$1.10, Style No. 1034. Tool literature free.

SMITH & HEMENWAY CO., Inc.

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We can offer something SPECIAL in the way of PRICE. Write for catalog and particulars.

"A Bit of Utility"

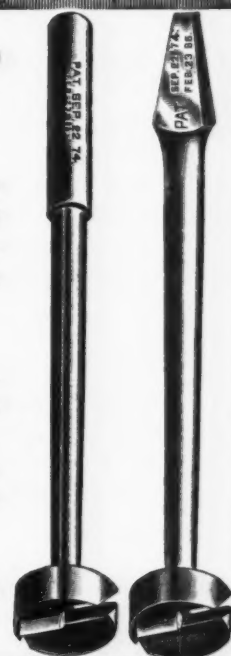
FORSTNER BITS are DIFFERENT from all other wood boring tools. Being guided by the outer rim they may be turned in any direction. The work is left smooth and polished.

Unequaled for Delicate Work

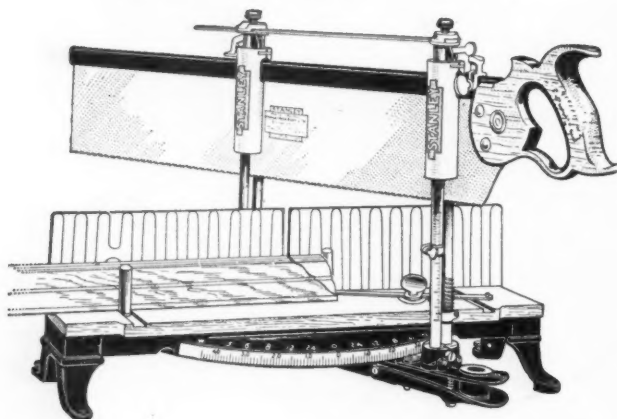
Practical for use as gouges or chisels, suitable for scalloping, fancy scrolls, twists, columns, newels, ribbon mouldings, mortising, etc.

Cabinet and pattern workers are enthusiastic over them. They do more work and cost no more than other bits.

The Progressive Mfg. Co.
Torrington, Conn.



Stanley Tools



Stanley Mitre Boxes

STRONG—DURABLE—ACCURATE

A Few Striking Features

- Saw is held above work when not in use.
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- Two sockets in swivel for use of long or short saw.
- Narrow opening in back of frame, especially adapted for small work.
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- One-piece frame with detachable Malleable iron legs.
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A specially made back saw furnished with each box

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will make an extra profit for you in your business, if you write us immediately regarding information on installing Shogren Metal Weatherstrips in your locality.

The Shogren Metal Weatherstrips are by far the most superior on the market today and are also the easiest to install. You can install Shogren Metal Weatherstrips in half the time of any other make. They embody every advanced idea plus an exclusive method of operation which has no equal and the prices are no higher than what every customer on your list can well afford.

Write us now for information

Without obligation, we will gladly send you complete data on the Shogren Metal Weatherstrips and how you can cash in on our proposition now. Write today.

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Carpenters Wanted

THE HENRY AIRTIGHT WEATHERSTRIP for the bottom of **DOORS** and **CASEMENT WINDOWS**. A perfect protection against rain, cold, snow, and dust. Approved by architects, contractors, and builders wherever known. Carpenters and others are making big money selling them.

Write today for our proposition.

The
**Henry Airtight
Weatherstrip Co.**
Crawfordsville,
Indiana



Wilder Steel-Latch Cattle Stanchions

have special, patented features every contractor and stock owner should know about. All hardwood construction except for our Steel Latch. They're smooth—rustless—easy to adjust. Automatically rigid when open—swing freely when closed. Cheaper and more efficient than steel. Write for full information.

WILDER-STRONG IMPL'T CO.
Box H, Monroe, Mich.

Sterling Barrows

are made to satisfy the busy contractor, rather than please the "Bargain Hunter."

It would be impossible to please both, so we take our chances with the busy fellows who have no time to oil squeaks and tighten shakes.

There are no squeaks or shakes to the



The Leg Braces and Shoes are riveted. The Wheels are equipped with self-oiling bearings.

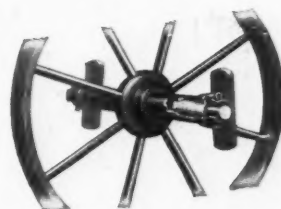
Then, too—the Sterling Barrow is built extra strong throughout and is scientifically designed to lighten the load on the wheeler.

The Sterling line includes a barrow for every purpose.

Sterling Wheelbarrow Co.

West Allis, (Milwaukee) Wisconsin

The Wheel That Made The "Sterling"



The Self-Oiling Steel Hub That Made the Wheel



Write today for Catalogue No. 19 and Form Clamp Booklet.

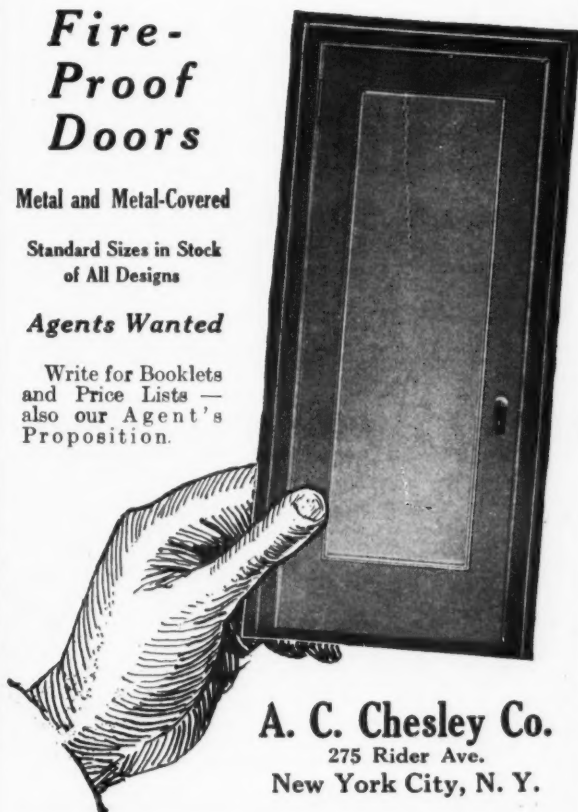
Fire-Proof Doors

Metal and Metal-Covered

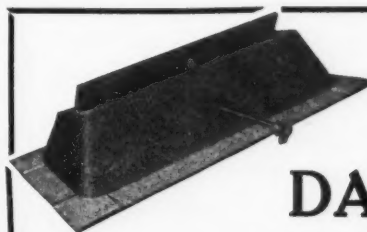
Standard Sizes in Stock of All Designs

Agents Wanted

Write for Booklets and Price Lists — also our Agent's Proposition.



A. C. Chesley Co.
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Improved Fireplace DAMPERS

Stover Dampers make the building of fireplaces easy. The labor saved by their use reduces the cost considerably.

Catalog 1590-X describes these and other new style dampers in detail, gives valuable suggestions as to fireplace construction and shows a large assortment of other fireplace fixtures.

If you build fireplaces, send for this catalog. *It's free.* We manufacture builders' and household hardware, windmills, feed mills, gasoline engines.

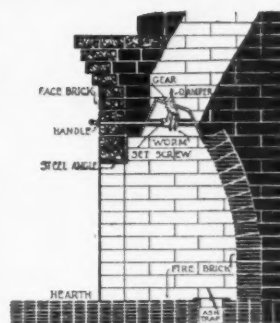
Stover Mfg. & Engine Co.

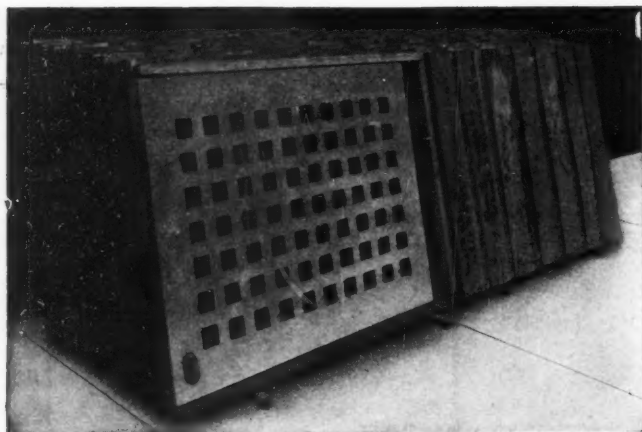
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Freeport, Illinois

STOVER MFG. & ENGINE CO., 725 East St., Freeport, Ill.
Send us Catalog 1590-X.

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BUSINESS.....
CITY.....STATE.....





Labor is Scarce!

Make quick work of your sidewalk light installation by using American 3-Way factory finished SLABS

FORMS, staging, high-priced cement finishers and the attendant muss and trouble is eliminated when

American 3-Way Factory Finished Sidewalk Light Slabs are used. You merely take the slab out of the crate, slip it into its seat in the sidewalk and caulk the joint. ¶All our lenses are made of specially annealed LAZALITE GLASS with plastic malleable coating on side walls to take care of expansion. ¶We have several shapes and sizes based on the 3-Way principle.

ASK FOR CATALOGUE 16-L

American 3-Way Prism Company

Manufacturers of Prism Products, Sidewalk Doors, Coal Hole Covers

Main Office and Factory: LA PORTE, IND.

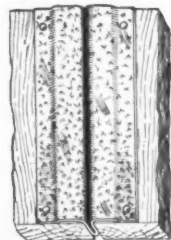
Branch Office and Factory: Spring and Wooster Sts., New York, N. Y.

When You Need Men

consult the Opportunity Page of the American Builder. Men—the right kind—are always open for opportunities to advance themselves. Do you want the ambitious kind—the kind that can do things?

An advertisement at 5 cents a word per insertion on the page headed "Opportunities" will put you in touch with such men.

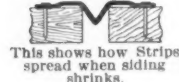
AMERICAN BUILDER, 1827 Prairie Ave., Chicago



For Vertical Siding



Shape of Strips when first put on.



This shows how Strips spread when siding shrinks.

Here's the Perfect Batten Strip for Barns, Garages, Chicken Coops, Etc.

Far superior to wooden battens. Will not split, warp or work loose, nor interfere with sliding doors. Allow for shrinkage or swelling of siding. Keep joints always tight. Waterproof. Rust proof. Make floors rat proof. Try them on the next barn, garage, chicken coop, granary, corn crib or hog house you build. Be sure you get

KEES METAL BATTEN STRIPS

Made of No. 28 and 29 gauge galvanized iron—accurately shaped and pierced with nail holes. Come in 6, 8, 10 and 12 foot lengths. Be sure to state length wanted. Packed 1000 lineal feet to a crate. Treated to take paint like wood.

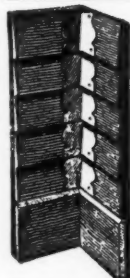
Write us for prices, samples and descriptive booklet.

Address:

F. D. KEES Mfg. Co. Box 552 Beatrice, Neb.

Chief Metal Building Corners

Warp-Proof—Rust-Proof—Fit Anywhere



They make a corner with the smoothness and neat appearance of a "mitred corner" and save the time and labor of beveling down the siding. Made of heavy galvanized steel. Fit any corner—inside or outside and make a smooth corner that does not hold dust or moisture. Cannot warp or split, and prevents warping of the siding.

Chief Corners protect buildings from injury and are practically indestructible. Furnished ready perforated for nailing to the siding. Put on easily and quickly. Can be painted any color or left unpainted as desired.

Write for free sample and full information



SHRAUGER & JOHNSON :-: 430 Walnut St. ATLANTIC, IOWA

THE EXPERT'S CHOICE FILE



Does twice the work of an ordinary file—in half the time. The Expert's Choice increases the value of your time by over 50%. By spending 25 cents you can make it back on your first filing job alone. It's in the Quality—in the cut of the tooth and in the length of the stroke.

Frank Luther, Chicago, says: "The Expert's Choice File files 18" hand saws and is cheaper at a cost of 50c than the ordinary file at any price."

You get your money back if the Expert's Choice does not prove to be the most economical file you have ever used. DELTA SAW FILES are made for fine or coarse teeth—also for that extra hard saw.

Buy your tools of the dealer who sells Delta Files. He is the quality man.

Trial Offer If your dealer cannot supply you, send us 15c, 20c or 25c for trial file, sent prepaid. Do this today—find out what a real file is.

DELTA FILE WORKS
PHILADELPHIA, PA.



Look for
This
Sign
at
Your
Hardware
Store

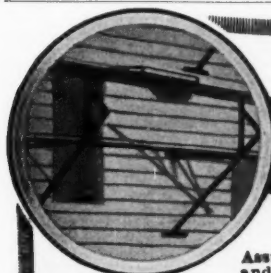
Make Your Basements WATER TIGHT

by using Bitu-Mortar Waterproofing Compound. Liquid, for waterproofing cement coatings—powder for waterproofing mass concrete—dampproofing, for interior surfaces of masonry walls. Inexpensive and everlasting. Write for our catalog.

The Bitu-Mortar Waterproofing Co., Inc.

BITU-MORTAR
WATERPROOFING
WATERPROOF PERMANENTLY

Engineers, Contractors and Manufacturers
340-344 East 27th Street New York, N. Y.



—The key to Confidence

"Safety First"

SCAFFOLDS

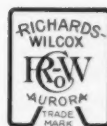
Assure absolute protection to yourself and your workmen. You cannot fall off.

They can be attached as fast as one man can hand them to another man, as there are no holes to bore or nails to drive. It is not even necessary to have your building sheeted. Equipped with tool shelf. Folds up flat for storing.

Write for catalog and trial proposition.

John Faragher, 811 So. Brooks St., Madison, Wis.

Richards-Wilcox Barn Door Hangers



Easy to Put Up—Hard to Break Down

Strong. Convenient. Bird-proof. Storm-proof. Adjustable. Made to carry doors weighing 200 pounds to 2,000 pounds. Cannot jump the track nor bang in the wind.



This barn owned by Jesse V. Wise, Van Buren County, Michigan, has 22 single sliding doors and 4 double sliding doors, hung on 30 pairs of Richard-Wilcox Barn Door Hangers.

Sold by the best Hardware trade everywhere

Write for catalog

Richards-Wilcox Manufacturing Co.

SAN FRANCISCO
LOS ANGELES
NEW YORK
CHICAGO

AURORA, ILLINOIS, U.S.A.

Richards-Wilcox Canadian Co., Ltd., London, Ont.

"A hanger for any door that slides"

PHILADELPHIA
PITTSBURGH
BOSTON
ST. LOUIS

Built for Years of Service—Not Just Made

Years of scientific study and experience in manufacturing high grade planes go into the design of the new Sargent Automatic Set Bench Plane. All parts are carefully machined so that adjustments are easy and alignments perfect.

See this new plane at your dealers or write today for full descriptive catalogue.

SARGENT & COMPANY

51 Water Street

New Haven, Conn



SARGENT

REG. U.S. PAT. OFF.

Linclad

SHINGLE NAILS

Made for wood, asphalt and asbestos shingles in both cut and wire styles. All standard sizes carried in stock for prompt shipment.

*Write for Samples
and Prices*

W. H. MAZE COMPANY
PERU, ILLINOIS



SILVER LAKE A Sash Cord

The Best Cord adds nothing to the cost of a house, is guaranteed to wear twenty years, and your client is saved the annoyance and expense of replacing broken cord. Made in all sizes to fit all pulleys. Silver Lake A is printed on every foot of cord. Guaranteed full lengths.

SILVER LAKE CO., Newtonville, Mass.

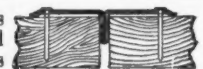


Wind-Proof—Rain-Proof—Rot-Proof Chief Galvanized Iron Barn Bats

Make your buildings tight. Chief Galvanized Steel Strips fill the cracks between boards and make strong, neat, weather-proof joints. Keep out vermin. Cannot rot, warp or split like wooden batten. Always fit. Allow for contraction and expansion of boards without loosening nails. Furnished in 6-7-8-9-10 ft. lengths with interlocking joints. Write for full information.

SHRAUGER & JOHNSON

430 Walnut St. :: Atlantic, Ia.

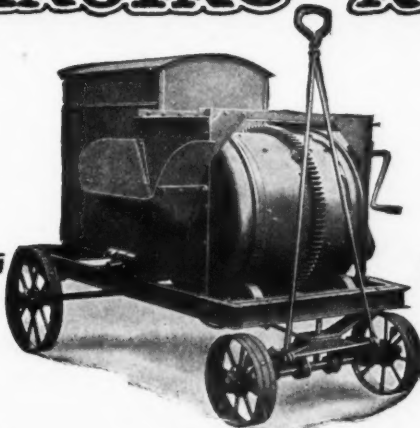


Shows end view of Chief Batten with joint closed. Siding expanded. Note position of the batten in the crack.



Shows end view of Batten with the joint open and siding contracted. Chief Battens automatically accommodate expansion and contraction.

LANSING No 5



Designed for the Average Builder

This "half sack" batch mixer does the work of an all around contractor, such as sidewalk curbing and foundation work with the least possible expense. The first cost is small, it costs but little to run and is easily moved from job to job. Don't fail to investigate the No. 5 before buying. Send for our catalogue No. 202 Many other sizes.



22 Cedar Street, Lansing, Mich.

CHICAGO.....167-169 West Lake Street
NEW YORK.....288-289 West Street
BOSTON.....78 Cambridge (Charlestown District)
PHILADELPHIA.....Corner North American and Willow
MINNEAPOLIS.....517-519 North Third Street
KANSAS CITY.....1413-1415 West Tenth Street
SAN FRANCISCO.....338-348 Brannon Street

Packard Low Charger BUILT OF STEEL

The choice of the most successful contractors. A high speed, high-efficiency mixer especially made for fast work on stiff concrete for Curbs, Sidewalk, Gutters and Foundations. Light, Strong and Durable. Has Hinged Low Loading Platform only 24 in. high. Power Loader or Batch Hopper if wanted. Sold with our "Money-Back" Guarantee—cash or easy payments—price astonishingly low. Prompt delivery from stock carried in all large cities. Write for catalog today.

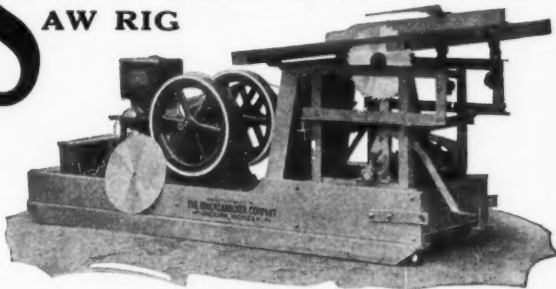


6 and 11 Fl. Sizes

MIXES
MORTAR and
PLASTER as
Well as
CONCRETE

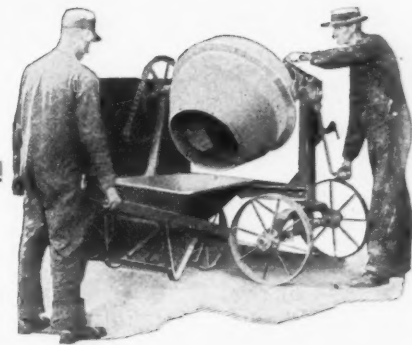
AMERICAN CEMENT MACHINE CO., Inc., Keokuk, Iowa

SWING CROSS-CUT AND RIP SAW RIG



We build Woodworking Machinery, Concrete Mixers, Mortar Mixers, Hoists, Pumps

The Knickerbocker Company, 525 Liberty St., Jackson, Mich.



THE WONDER JUNIOR

"The Small Job Money-maker"

Capacity 3 to 4 Cu. Ft. per batch

The Junior takes the drudgery out of mixing concrete and makes a profit on the smallest job. Drum tilts and empties like a pail and as easily cleaned. Mix visible. Machine all steel, strong, easily portable—can be taken into basements or on elevator to upper stories. Mixes stucco as well as concrete—a REAL MIXER, which, despite high cost of materials, we are able, through greatly improved facilities, to sell at a price below your expectation.

2 H. P. Wonder Gas. Engine, durable, economical, dependable, with steel housing, and detachable for other work.

WONDER MIXERS are also built in sizes of 5 to 6, 7 to 8, and 10 to 11 Cu. Ft. per batch, with and without Side Loader.

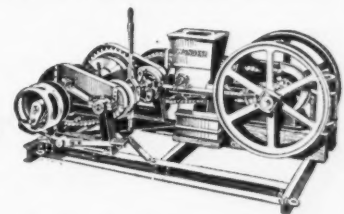
WONDER MIXERS and HOISTS

have national reputation for efficiency. Proof of this is shown by the large number in use for building Army Training Camps. The contractors for this work take no chances and their heavy buying of WONDER equipment is significant.

Your choice is relatively just as important. Get the vital, long life facts of exclusive WONDER principles and superiority of construction.

The Wonder Builders' Hoist is specially adapted for the wide range of operation required in the contracting field. Simple in design, ruggedly built, first-class construction throughout, moderate priced. Hoist drum and elevator sheave independent and operated in either direction. Two line speeds and load capacities at no extra cost. One lever control. Engine can be used independently. Easily portable. Built in sizes 5-7-9-H. P. Also single and Double Drum Non-Reversible Wonder Hoists—5-7-9-H. P.

WONDER
SINGLE
DRUM
REVERSIBLE
BUILDERS'
HOIST



Send for Catalog

Waterloo Cement Mach'y Corporation

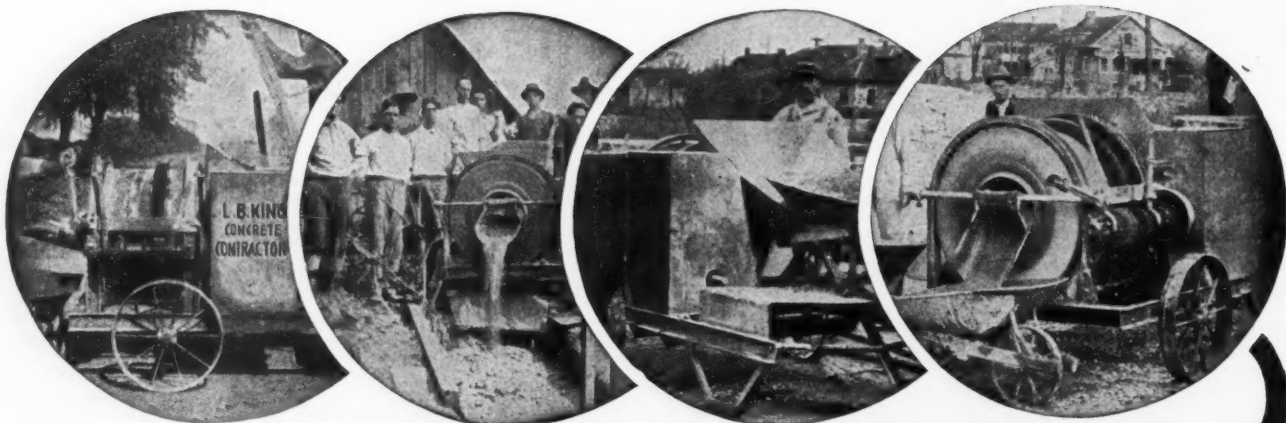
103 Vinton St., Waterloo, Iowa

MIXERS, PAVERS, HOISTS, PUMPS, BACKFILLERS

NEW YORK
CHICAGO

PHILADELPHIA
KANSAS CITY

INDIANAPOLIS
SAN FRANCISCO



Always on the Job--

"Little-Devil" Mixer

A Bigger, Better Mixer for the Same Money

Capacity 7 cubic feet of loose material. Low Charging—End Discharge—May be used for Paving, Grouting Brick Pavements, Foundations, Sidewalks and will mix and place concrete quicker and at less labor cost than any mixer on the market. Write today for catalogue, prices and terms.

Chicago Builders' Specialties Co.

1461 Lumber Exchange Building, 9 South LaSalle Street, Chicago, Ill.



VAUGHAN'S Vanadium Nail Hammer

Vanadium is a purifier of steel. The best vanadium obtainable is used in making the Vaughan Hammer. Each hammer is tested and tempered individually. The handle is carefully shaped for the hand and has a wax hole in the end for waxing nails to be driven in hardwood. The claw of this hammer grips—it never slips.

If your dealer does not carry the Vaughan Vanadium Hammer we will send it to you prepaid. Let us have the dealer's name, too.

Vaughan & Bushnell Manufacturing Company
2114 Carroll Avenue Chicago, Ill.



The Toughest, Strongest
Hammer Made

\$1.50
EACH



WAX HOLE

No. 41 16 oz. Full Polished No. 42 13 oz. Full polished

Makers of Fine Tools



The RED Nailer for 3d galvanized No. 13 gauge 1 1/2-in. wire nails. The regular price is \$7.00 but if you order from this ad. we will send it prepaid parcel post for \$5.00. This offer is liable to be withdrawn, so act now.

PEARSON MFG. CO. - ROBBINSDALE, MINN.

*Pays for itself on the
First Job*

==The Pearson== Automatic Shingle Nailer

Do your nailing fast—faster than ever before. You can use this Pearson's Nailer on any pitch roof. Wear mittens, gloves, etc. This "Hand Nailer" is the only Nailer—throw nails in by the handful—then start nailing. Nails easily driven through tin or quite heavy sheet iron.

These nailers are made in two sizes—The BLUE Nailer for 3d, common No. 14 gauge wire nails.

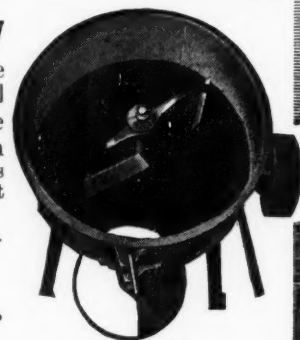
Capacity---Economy

The Frank, low price mixer will produce a full batch a minute. The mixing is always in plain sight and the machine is simple, nothing to get out of order.

Sold in 3, 5 and 7 foot sizes. Every mixer guaranteed.

INVESTIGATE TODAY
Frank Mfg. Co.

241 Century Bldg.
DES MOINES, IOWA



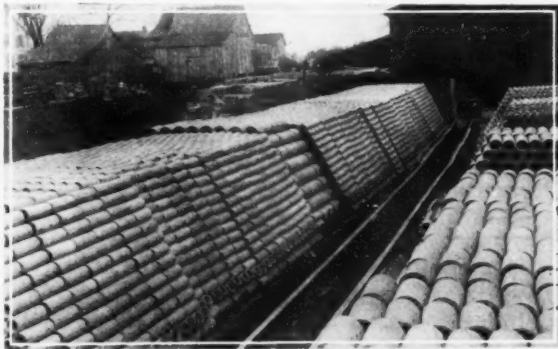
Inside View, Showing
Door for Unloading

Winter Profits from Concrete Products

NO need for idle days this winter—no need to lay off experienced help—no need for idle hours between now and the busy building season. Concrete products are always in demand, and can easily be made by building contractors during the winter months. Only a small investment is required for the necessary equipment. Dunn machinery is standard and guaranteed.

Cement Drain Tile Is a Big Profitable Business for Winter

The concrete product most in demand now is cement tile. There are opportunities for thousands of individual tile makers. Farmers are clamoring for drain tile—and more drain tile. It is one business not affected by scarcity of materials, freight delays or labor difficulties. The manufacture is local and the demand is local. The market is within wagon hauling distance of every plant. Profits are big and permanent.



THE tile business has been our specialty for twelve years. Thousands of Dunn machines are in satisfactory and profitable use today, and Dunn equipment is the standard for men of limited capital. We co-operate with every Dunn machine owner, posting him on manufacturing and selling. But a very small investment is required on the start, and success is assured right from the beginning.

As a winter business for the building contractor the manufacture of drain tile is without an equal. All the tile manufactured during the winter months will sell readily for the spring drainage season.

Upon request we will send the book "Cement Drain Tile" to any building contractor. This gives full information on the tile business, and shows how profits can be made without a large expenditure for equipment. Send for this book today.

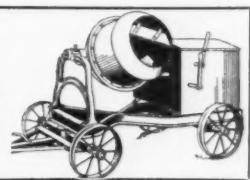


Make Sewer Pipe

There is a big demand for cement sewer pipe. Manufacturing is easy and the profits are big. Dunn molds make all sizes of pipe from 6 inches to 36 inches diameter. No tamping or other difficult work. Write for the Dunn Pipe Mold bulletin.

Dunn Concrete Mixers

Less manual labor is a vital necessity to contractors. The labor-saving features of Dunn mixers are many and positive. For quality of mix, a speed of a batch per minute, ease and simplicity of operation, and sturdiness of construction, the Dunn is easily the big mixer value of today. Write for Dunn Mixer bulletin for information on sizes, styles and prices.



300% Profit

Concrete porches are easily made and easy to sell. All the molds necessary require a very small investment—the profit on two porches will buy them. Same molds will make other products also. Write for Ornamental Mold bulletin.



Make Vases

Concrete vases and flower boxes sell on sight. Dunn molds make attractive and artistic designs. Profit is several hundred per cent. Prices and other information in Ornamental Mold bulletin.

Cement Blocks

Cement blocks can be made at the rate of 150 per day on the Dunn machine. Big in efficiency but small in price. Ask for the Dunn Machine bulletin.

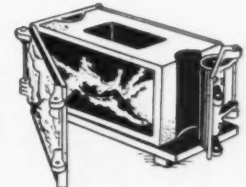


Sills and Steps Pay Big Profit

Every building contractor should have sill and step molds. Cost little, and product is always in demand at good prices. Information in Ornamental Mold bulletin.

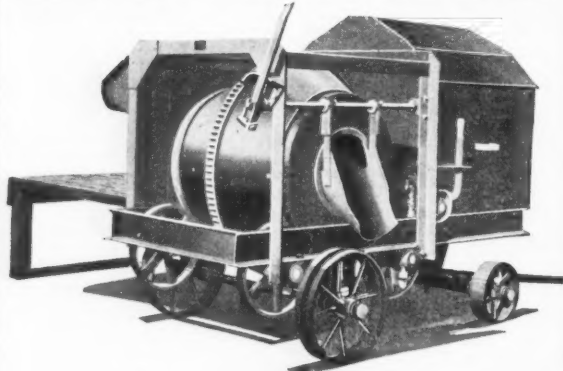
A Simple Way to Make Blocks

Dunn Concrete Block molds permit ease of manufacture and a big daily capacity with little labor cost. No special pallets required. Three sizes for making blocks 8x16 inches; 10x20 inches; 12x24 inches. Ask for Concrete Block Mold bulletin.



W. E. Dunn Mfg. Co. 415 24th St. Holland, Mich.

EUREKA



Low Charger

The Eureka Low Charger in two sizes, 5 and 7½ cubic foot capacities. Equipped with low easy charging hopper, either wheelbarrow or batch. Folding platform, extra. BUILT FOR BUSINESS.

Write for Our Low Charger Bulletin No. 52

EUREKA MACHINE CO.

103 Handy Street

Lansing, Mich.

Kill three jobs with one stone—

Get a BLYSTONE

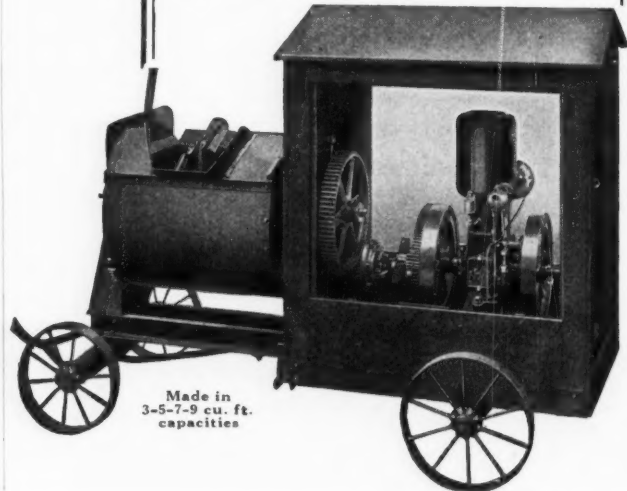
to do *all* the mixing you have to do on your building jobs—the concrete mixing—the mortar mixing—the plaster mixing.

Used by hundreds of building contractors for this very reason—it is the all-purpose mixer.

Send for concrete-mortar-plaster catalog

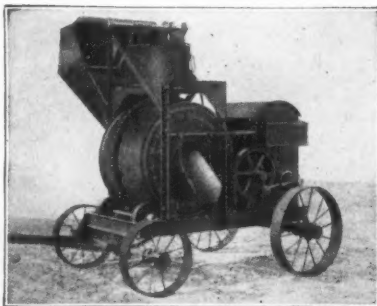
Blystone Manufacturing Co.

917 Carpenter St., Cambridge Springs, Pa.



Made in
3-5-7-9 cu. ft.
capacities

Austin Drum Mixer Features



Wide loader and opening into drum permit fast charging without clogging.

Design of mixing blades such that the mix is carried over on discharging chute very wet, allowing rapid discharge, either entire batch or part.

4-H. P. hopper cooled gasoline engine, or steam or electric power. Twenty gallon steel water tank and steel engine housing.

One position control. Capacity 60 to 80 cu. yds. per day.

Write for Bulletin 7-D

Municipal Engineering & Contracting Co.

Main Office: Railway Exchange Building, Chicago

New York Office: 30 Church Street



"Concrete for Permanence"



RANSOME



Well Mixed
Concrete for
Permanence—
Ransome
for better
mixing

(Member National
Association Mixer
Manufacturers)

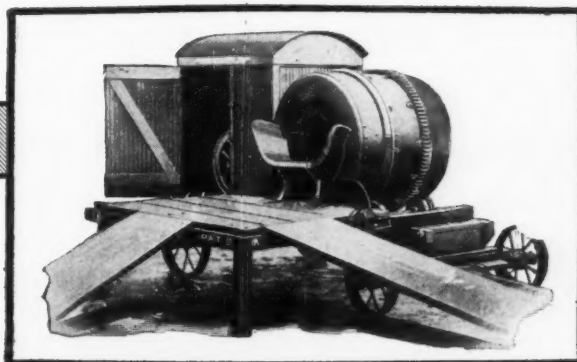
Registered U. S. Patent Office

The Ransome Bantam Mixer line, from the Ransome Bantam Junior to the Ransome Bantam Paver is the most efficient line of mixers ever produced. The Ransome Bantam is practically the American Standard. It means rapidity, efficiency, long life, low original cost, and economic operation. No waste and no time lost. Write for particulars.

RANSOME CONCRETE MACHINERY CO., 115 Broadway, New York City

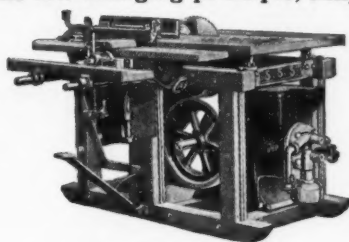
Agents in every large City

Factories: Dunellen, New Jersey and Reading, Pa.



"The Standard" Low-Charging Mixer

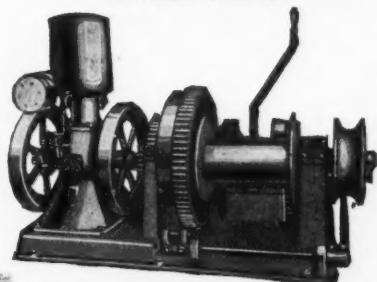
Thousands of contractors have found by actual experience that "The Standard" Low-Charging Concrete Mixer actually cuts the cost of concrete work one-third. This is due to the low-charging principle, simplicity of construction and the absence of mechanical loading devices which get out of order so easily. If you want to know how you can cut your concrete costs one-third, write to our nearest office today for our latest Mixer catalogue.



Saw Table Y-161-157

"The Standard" Contractors' Equipment

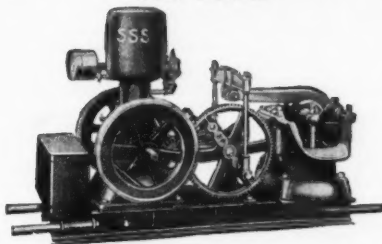
Contractors' Portable Variety Woodworker. Twelve tools in one. A Rip Saw, Cut-Off Saw, a Mitre Saw, a Dado Machine, a Gaining Machine, a Grooving Machine, a Rab-betting Machine, a Jointer or Planer, a Boring Machine, a Matcher, a Moulder, a Sander. Very substantially built throughout and will stand hard, continuous service. We can furnish Saw Benches, Wood and Pole Saws, etc. Complete information on request.



Hoist Y-161-52

"The Standard" Hoists

A full and complete line of high-grade hoists. Single Drum, Double Drum, Reversible, Non-Reversible, etc. Our catalogue shows each type of hoist and explains the kind of work for which each hoist is best adapted. Write to our nearest office today and ask for Hoist Catalogue.



Pump Y-161-97a

"The Standard" Pumps

Centrifugal, Diaphragm, Dredging and Gravel, High Pressure Outfits, Trench, Deep Well Outfits, etc. We have an interesting catalogue describing "The Standard" line of high-grade Pumps. Write our nearest office and ask for Pump Catalogue.

"The Standard" Contractors' Equipment Catalogue illustrates and describes nearly every piece of equipment used by the Contractor. A copy is yours for the asking. Ask for Equipment Catalogue No. 44-10.

"THE STANDARD" CONTRACTORS' EQUIPMENT

THE STANDARD SCALE
PITTSBURGH NEW YORK PHILADELPHIA
1631 Liberty Avenue 145 Chambers St. 523 Arch Street



& SUPPLY COMPANY
BALTIMORE CHICAGO CLEVELAND
409 N Gay St. 163 North May St. 7547 Columbus Rd.



**Thirty-five
yards per day
at a cost of
three cents
per hour**

EFFICIENCY and ECONOMY are prominent features of the Jaeger "Big and Little."

This mixer is so constructed that one man can complete the whole operation of loading, mixing and dumping a batch in one minute; one batch being mixed while another is being dumped. Each batch is turned from fifteen to twenty times every minute.

The drum discharge is placed at the most convenient height for either wheelbarrow or form work.

The Big and Little is mounted on trucks, strongly built and is especially suited to the work of the all around contractor.

We will gladly send you the
Jaeger catalog, giving prices
and complete descriptions.
Write for it today.

Jaeger Machine Co.
318 W. Rich Street Columbus, Ohio



SAVES — SAVES — SAVES MONEY — MEN — TIME

Discharge direct into forms saves wheelers' wages—two wheeled truck moved by one man, saves big moving gangs—15 second discharge and 30 second mix are time savers.

Archer Mixers

The original end-discharge mixers are the most economical for every purpose and by every test. Send for special offer.

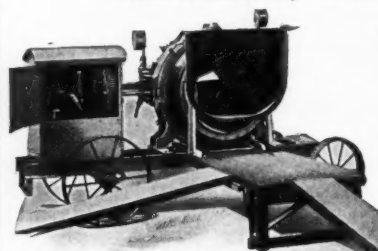
ARCHER IRON WOKS
2440 W. 34th Pl., Chicago



The T. L. Smith Company

1138-H-32nd STREET

Milwaukee, Wisconsin



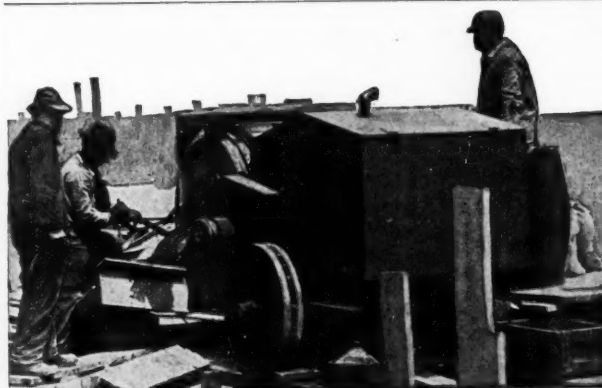
MANUFACTURERS OF

**Smith Tilting
Mixers**

Catalog No. 68-H

**Smith-Chicago
Non-tilting
Mixers**

Catalog No. 128-H



DANDIE MIXERS

5 and 10 cu. ft. capacities. May be equipped with automatic water measuring tank, low charging platform, batch hopper and power loading skip, also light duty hoist.

Here is the Big Value light mixer—not the cheap-built, low-priced mixer, but the light mixer built to stand up and built in big quantities to keep down the price.

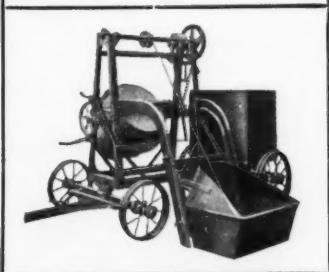
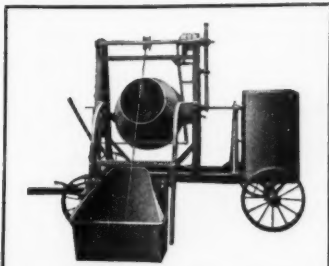
It is the right mixer for the big contractor who needs light machines to supplement his big capacity mixers, and of the contractor who does general work and demands a reliable, strongly-built mixer at a medium price.

Building these mixers in big quantities and standardizing every part the price is kept down and the quality kept up. This is why Dandie Mixers are the big value of the industry. Write today for special booklet.

KOEHRING MACHINE CO. MILWAUKEE WISCONSIN

THE DAWN OF A NEW NAME

"Built on the Square"



"Sold on the Square"

FOR fourteen years the name STEWART has been identified with the Concrete Machinery business.

Throughout our big plant—at the fairs—on the road—at the Cement shows—in the publications—on the job—everywhere, STEWART has always been in evidence.

Thousands of contractors have met STEWART, talked with STEWART, bought from STEWART and used STEWART products and inventions.

Yet—as a name for a firm and as a brand for a line of Concrete Machinery—STEWART is really a new name.

It's a good name, though—because it stands for honesty, integrity, and a policy of building and selling goods strictly "On the Square."

We thank the thousands of customers who have helped make STEWART a success and write this message as a greeting and an invitation to all readers to get acquainted with STEWART and the STEWART way.

The Stewart Mixer

The STEWART Mixer is a new machine, or rather a new model, built along old principles, by an old firm. In fact, it's built by STEWART with fourteen years of Concrete Machinery building and a lifetime of engineering and contracting experience as a foundation.

It has been tried and tested in every possible manner.

It is a mixer you can count on to start a job and finish a job with a perfect score.

In fact, it is "Built On The Square" and "Sold On the Square" and is guaranteed to give satisfaction.

Five sizes and fifteen styles give you a big line to choose from so you are bound to find a STEWART Mixer for your own individual needs.

Write today for prices and information. Let us tell you about this machine and the STEWART way.

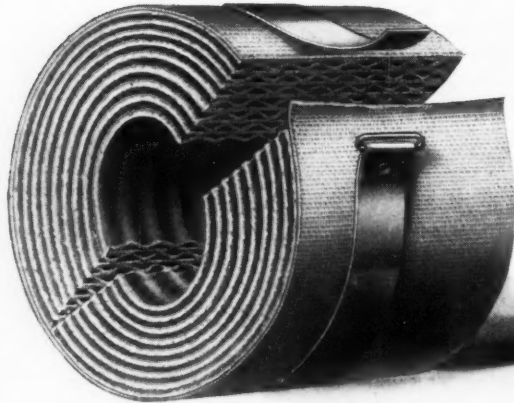
Stewart Manufacturing Company

Successors to The Cement Tile Machinery Company

46 Rath Street, Waterloo, Iowa

Builders of Concrete Mixers, Block Machines, Block Tempers, Sand Screens, Sand Elevators, Tile Cars, Block Cars, Brick Cars, Dump Cars, Transfer Cars

Johns-Manville
Asbestocel
Sectional Pipe
Insulation



Your choice of insulation determines your customer's coal bills

It is often as poor economy to use an expensive insulation on a hot-water heating system as to specify one inch covering for a high-pressure steam line—which means that insulation is a technical subject, and not only technical but practical, because it works right back to the coal pile.

Leave the selection of the proper insulation to us. Let us prescribe the whole installation—from the sole standpoint of maximum economy.

Our skill and experience for such work are assured by 50 years of specialization on insulation, and our line of coverings is completely standardized to meet every requirement. Just call on the Johns-Manville Branch nearest you for information and advice—you'll get it freely and fully—and increase both your profits and your customer's satisfaction.

H. W. JOHNS-MANVILLE CO.
NEW YORK CITY

10 Factories—Branches in 54 Large Cities



JOHNS-

Residence of Ernest Searing, Esq.
Marion, Pa.

Druckenmiller & Williams, Architects



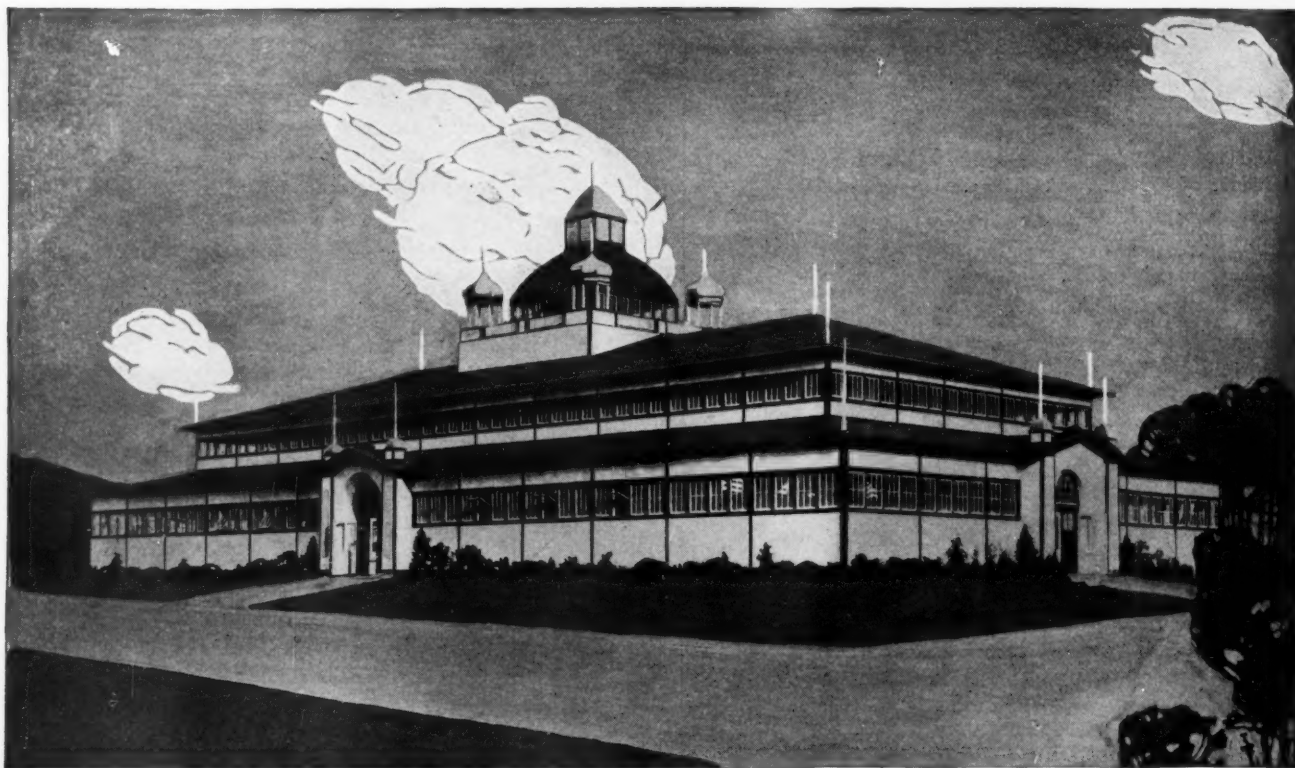
**Here's what we do to help YOU
sell Johns-Manville Transite
Asbestos Shingles:**

1. A strong advertising campaign in the general magazines to drive home the everyday and nation-wide importance of fire prevention and fire protection, and to establish the Johns-Manville Asbestos Shingle as the **modern fire-proof** shingle.
2. Advertisements in the papers read by home-builders, urging them to protect their investment properly against communicated fire.
3. Selling helps for the dealer—specially prepared data and folders to help make sales.
4. Direct advertising to the Consumer—to supplement the magazine advertising. All inquiries from prospects are sent to the local dealer.
5. Circularizing campaigns sent out by us, at our expense on the dealer's letterheads, over the dealer's name, to prospects in his territory.
6. Individual help as local conditions demand.

And when we, or our dealers, can improve on this system, you can be sure the improvement will be made.

Details of our dealer plan on request.

MANVILLE



Exposition Building, Erie, Pa.

Stucco Finish on Bishopric Board.

Architect, Jos. Lee, Erie, Pa.

NOW the Stucco Building is Preferred

Stucco is admittedly an artistic and attractive exterior finish. And *now* it can be made *lasting* and *economical*. Bishopric Board makes it possible. How? By applying principles that ages of actual use in building construction have proven the most efficient.

First, your stucco mixture *must be right*. This is *important* but easily accomplished if correct instructions are followed—our catalog contains full information about mixing stucco.

Now apply it properly on a *background of Bishopric Board*. Note how it is *anchored* to the background! Those dovetailed joints between the lath *clinch* the stucco—it *can't* let go! And nails through every lath hold the Bishopric Board firmly and securely to the building. There is *no breaking away* and *sagging*, causing the stucco to crack and chip off.

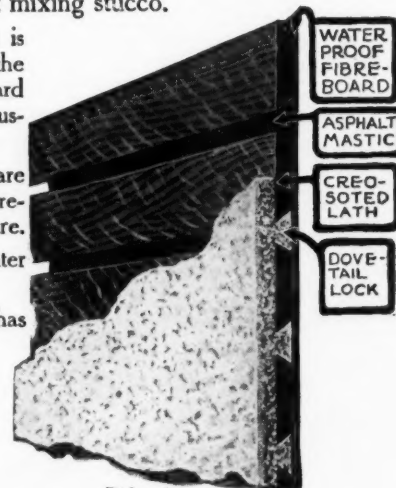
The lath in Bishopric Board are *thoroughly creosoted* to preserve them. They are imbedded in Asphalt Mastic on a background of heavy fibre board, making a fire-resisting combination that is proof against vermin, changes in temperature and moisture. Bishopric Board will add years to the life of a building and make it warmer in winter and cooler in summer.

Finally, Bishopric Board, under the severest scientific tests and in actual use, has *proved* its superiority.

The Bishopric Manufacturing Co.

903 Este Avenue

Cincinnati, Ohio



Bishopric Board clinches the Stucco



Send for free samples and our book "Built on the Wisdom of Ages." It tells all about Bishopric Board and gives some interesting scientific tests. It illustrates homes and other buildings constructed with Bishopric Board and gives letters from builders, architects and users.

Our Annual Dealers' Supply Number

A SHORT TALK WITH SUBSCRIBERS AND ADVERTISERS BY THE EDITOR

THE AMERICAN BUILDER believes it is to the best interests of the entire building industry for building materials to be bought at home from the local lumber and building material dealer. Therefore, the AMERICAN BUILDER refuses to publish mail-order lumber and millwork advertising. Builders require SERVICE, which the out-of-town concern cannot render, but which the local firm can and does render exceedingly well and to the benefit of the entire building industry.

An essential factor of this service is the carrying of a full stock of goods in the local dealer's warehouse and lumber yard. If the local dealer is well stocked, the carpenters and builders just naturally make his place of business more and more the center for the promoting of new work, and the place where they can meet those intending to build, show them samples of the building materials and specialties under consideration, and decide on the details of the job.

The AMERICAN BUILDER believes that this matter of having a full stock of up-to-date goods carried locally is so important, both to the contractors and to the retail dealers, that the November AMERICAN BUILDER is to be made our Annual Dealers' Supply Number. We are confident that our contractor and carpenter subscribers, quite as much as the dealers who read this building journal, will find this Dealers' Supply Number interesting and helpful.

Influential Among Dealers

The AMERICAN BUILDER has more subscribers among retail lumbermen, building material dealers, and hardware dealers, than any lumber paper. In addition, it has more subscribers among builders than any other building paper. These two big factors in marketing and distribution in the building field make the AMERICAN BUILDER the medium of greatest influence, and the ideal advertising medium for the manufacturers of lumber and other building materials, builders' hardware, mechanics' tools, contractors' equipment and supplies, and building specialties of every kind.

There are more than seven thousand dealers on the AMERICAN BUILDER subscription list. Every one of these seven

thousand copies does *double duty*, for in addition to being closely read by the dealer—who buys in good sized quantities—it is placed on his reading table in his office for the *convenience and benefit of his customers*, who are contractors, farmers, and prospective home owners. These customers study the plans of houses and farm buildings which are a feature of every number, and also turn to the advertising pages, as they are interested in the products described in them.

Fair Policy Endorsed

The AMERICAN BUILDER is held in very high esteem by retail lumber and building material dealers, because of its policy of refusing to publish the advertising of mail-order lumber and millwork concerns. It was the first building paper to take this positive stand, and altho it meant a loss of many thousands of dollars of advertising revenue, it has resulted in making warm friends for the AMERICAN BUILDER among dealers. For over a year and a half the AMERICAN BUILDER was the only journal in the building field that believed the good-will of its readers was worth more than any amount of advertising that could be balanced against it.

Dealers have shown their friendship for this publication, both by subscribing for it themselves, and also by highly recommending it to their contractor customers—in many instances even sending us themselves the names of their best contractors as subscribers.

All of this has been accomplished, as our readers know, without sacrificing one bit of the *real builder spirit and character* of the publication. The AMERICAN BUILDER is 100 per cent a builders' journal, and for that reason is all the more interesting to dealers concerned with the building field. Next month's magazine, our Annual Dealers' Supply Number, will be for builders and dealers alike, featuring matters of vital interest to both.

Don't miss this issue. It's going to be a big one and a dandy.

Yours for local harmony and full stocks to select from,

EDITOR AMERICAN BUILDER.

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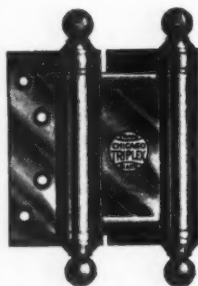
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SPRING HINGES A SUGGESTION

Do you specify a spring hinge with distinctive features which will appeal to your client and assure satisfaction to all concerned?



Chicago "Triplex" Spring Butts

offer this advantage to you. The appearance, durability and finish of this article are unsurpassed, and in consideration of prices that are conservative in respect to value, the up-to-date builder cannot afford to risk his reputation for goods that are unsatisfactory.

Send for Catalogue C 32. It illustrates and describes the most complete line of Spring Hinges manufactured.

Chicago Spring Butt Company.

CHICAGO



NEW YORK



Rufus D. Wood, Architect, Pittsburgh, Pa.

Read what this Architect says about his own house, which is stained with

Cabot's Cresote Stains

"The shingles of the roof and second story are stained with your brown stain and the plaster on the outside columns with your white Waterproof Cement Stain. A number of the shingled houses in my neighborhood have been stained with creosote (?) stains manufactured by local concerns and their colors are very muddy and disagreeable and do not seem to stand the weather, while mine has retained the original nut-brown color which I desire." (Signed) RUFUS D. WOOD.

Cabot's Stains have been the standard for more than twenty-five years, and are specified by nine-tenths of the architects, who know them from experience. Their colors are soft, rich and beautiful, and guaranteed fast. Their vehicle is Creosote, which thoroughly preserves the wood, and they contain no kerosene or other cheapener. Why experiment with unknown stains, when you are sure of Cabot's?

Cabot's Stucco Stains

are the only artistic cement finishes. They give soft, natural coloring effects, without covering the surface with a paltry coating. They are also cheaper than coatings and easier to apply, and they cannot crack or peel. You can get Cabot's goods all over the country. Send for samples and names of nearest agent.

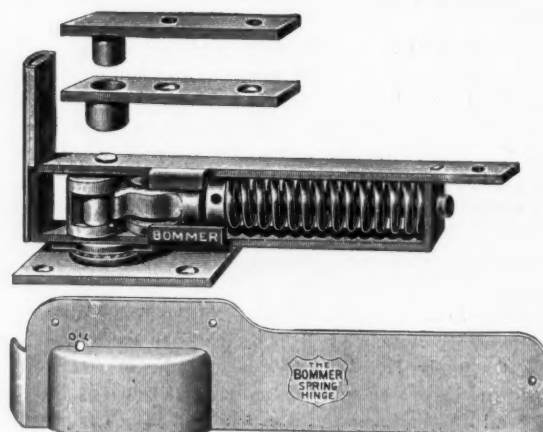
SAMUEL CABOT, Inc., Mfg. Chemists
BOSTON, MASS.

1133 Broadway, N. Y. 24 W. Kinzie St., Chicago
Cabot's Conservo Wood Preservative, Stucco Stains, Brick Stains, Damp-proofing.

BOMMER

Floor Surface Spring Hinge

Double or Single Action, Holdback, Ball Bearing. Every moving part of this hinge can be oiled from a single hole on outside of side-plate.



The most durable hinge of its type; holds the door open when swung to 90 degrees at either side

Your Hardware Merchant Can Supply Them

Bommer Bros., Manufacturers, Brooklyn, N.Y.

Worth Much to You

Morrill

Saw Set



All master carpenters are using this Saw Set. In one operation it takes out the wrong set and puts in the right one. Write for FREE booklet "Saw Points". It tells how to properly joint, set and file hand saws.

CHAS. MORRILL

94 Lafayette Street
NEW YORK

BUILDERS' HARDWARE



No. 546—1½ in. Ant. Cop. Fin. Spring Hinge. Per set, \$1.20
Weight per set, 4 lbs.

No. 6—Builders' Hardware Catalog sent free. On account of market conditions, we are unable to issue net price list. Send us your hardware list for quotation.

We do not sell to carpenters or contractors in Cook County, Ill.

Rehm Hardware Company
1501 Blue Island Ave. Chicago, Ill.

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Formerly AMERICAN CARPENTER AND BUILDER

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Single Copies, 20 cents. Canadian Subscription, \$2.50. Foreign Subscriptions, \$3.00.

ADVERTISING RATES

Furnished on application. Advertisements, to insure insertion, should reach our Chicago office not later than the 15th of the month preceding date of publication.

PROTECTION FOR OUR READERS

The publishers of the AMERICAN BUILDER reserve the right to decline any advertising they believe is detrimental to the interests of its readers; to edit advertising copy and to change or eliminate any statements that reflect injuriously or cast discredit upon other building products, machinery, equipment, supplies or tools.

Be sure in writing to advertisers to say: "I saw your advertisement in the AMERICAN BUILDER."

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Staff

VOL. XXIV

October, 1917

No. 1

A Big Job Well Done

THE completion of the sixteen cantonments for the national army is one of the greatest construction jobs ever undertaken by any government.

Within three months the government has expended approximately \$150,000,000 upon this work, whereas the largest amount appropriated in any one year for the Panama Canal was \$46,000,000.

Within 60 days 190 sawmills in all parts of the country shipped more than 500,000,000 feet of lumber to the cantonment sites.

All together 93,000 kegs of nails were used; there were installed 140,000 doors, and 686,000 sash, while nearly 30,000,000 square feet of wall board was used for inside sheathing.

When paved streets, telephones, fire protection, electric lights, water supply and sewerage disposal are added to this undertaking some idea may be had as to the wonderful piece of work done in record-breaking time in providing comfortable quarters for the national army.

**American Building Abroad**

IF present plans are carried to fruition, the invaded parts of France will be rebuilt on a larger and finer scale than before they were leveled to the ground by the German armies.

Narrow streets in cities and towns will be widened. The little one and two story dwellings so well known to American tourists will be enlarged and beautified. Insanitary conditions will be generally eliminated and other conditions measurably improved.

In all probability these sections of France will afford a market for quantities of American lumber and other building materials, due in part to the ravages of war on both French man power and materials of all kinds.

**The Crop Dollar is Big—Invest it in Buildings**

THE time to build is right now!

An equal amount of farm produce will buy twice as much lumber today as it would two or three years ago.

There is a mistaken impression that lumber is high. The illustrations opposite prove that it is not. The farmer will never find a better time to build than the present. His purchasing power is represented by what he produces. What brought him \$1.00 in 1914 now brings him \$2.00 or \$2.50. In other words, the same products now buy from two to two and one-half times as much as they did then.

In 1914 one bushel of wheat would buy three pieces of Southern pine 2x4-16. This fall one bushel of wheat will buy seven pieces of 2x4-16.

Or, if you plan to build a gambrel roof barn 32x56 feet with 14-inch shed along one side:

In 1914 it took 40 hogs to pay for this barn, while at the present time it requires only 24!

There was never a better time to buy lumber than the present.



Why to Buy Now

LUMBER and millwork are much cheaper today, as compared with the general market, than before the war.

This fact may be easily demonstrated by comparing the present price of leading commodities with those prevailing in 1914.

The following examples compiled by one investigator are typical:

Coal	133%
Labor	34%
Steel Products	350%
Woolens	100%
Machinery	68%
Horses and Mules	61%
Feed	83%

Another investigator finds that the principal crops are 104½ per cent higher in value than the average for the past nine years.

In other words, while the costs of most commodities have been increasing by leaps and bounds, lumber and the products of lumber have been among the the last to feel the effect of the changed conditions, and the advances in price have been but nominal.

One bushel of wheat or one hundred pounds of pork will buy more lumber and more millwork today than ever before.

For this reason we advise our readers to buy now. Prices of lumber and lumber products are low.

Do not wait until costs go up again. Take advantage of the present market.

Among others, the farmer will be benefitted by building this year. A good barn, granary and other

buildings will enable him to take care of the bigger crops, minimize wastage and hold his produce for top prices.

"But will not prices go down when peace is declared? Can't I save by waiting?" are questions asked by every prospective builder.

The answer is that no one knows when prices will decline. No one in a position to judge intelligently believes that they will ever again go back to the old low basis.

Supply and demand have the greatest influence in determining prices. A shortage of material or a heavy demand will result in high prices, as we all know.

No one doubts that the demand for building material will be tremendous after this war. It will take years to replace the buildings and property that have been destroyed. Much lumber will be exported.

The demand at home will be enormous. The country is prosperous and wealth is pretty well distributed. The farmer, the man in the small town and the city builder have the capital to invest in new homes or improvements to their property. They know that every purchase of building supplies is an investment.

In the face of such a demand, is it reasonable to suppose that prices will be lower?

Do not wait and run the risk of much higher prices. Build now, while lumber and millwork are cheap.

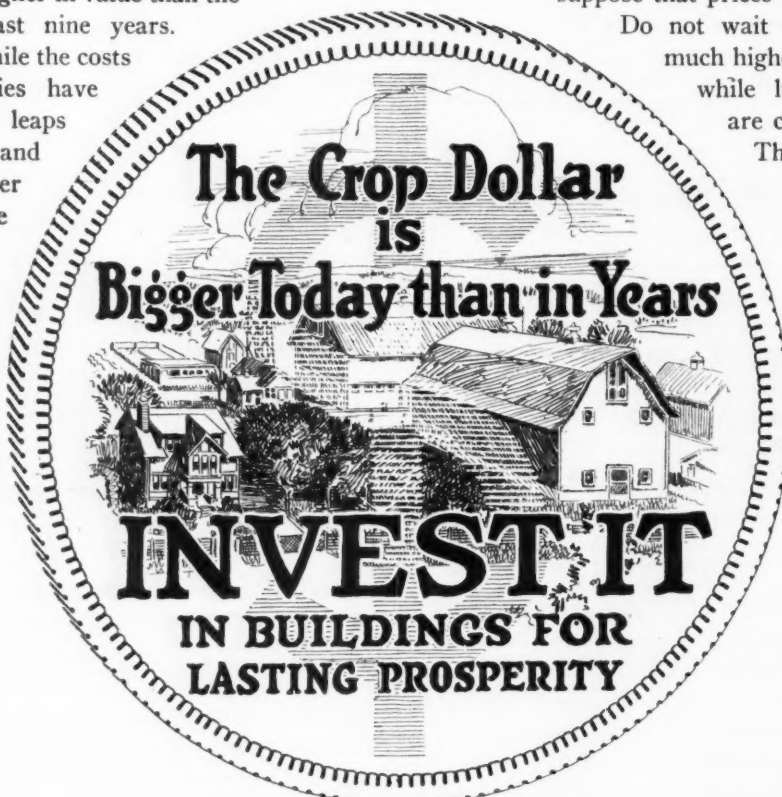
This is the time to buy.



Lumber Display Rack

A UNIQUE suggestion for assisting the retail lumber dealer to display and sell his product has been developed in the making of a lumber wood rack, to show samples of thirty American woods suitable for building purposes. The rack is also being prepared for use in manual training schools to aid instructors in their work with

their pupils. The rack includes wood from the North, South, East and West, every lumber producing portion of the country being represented.



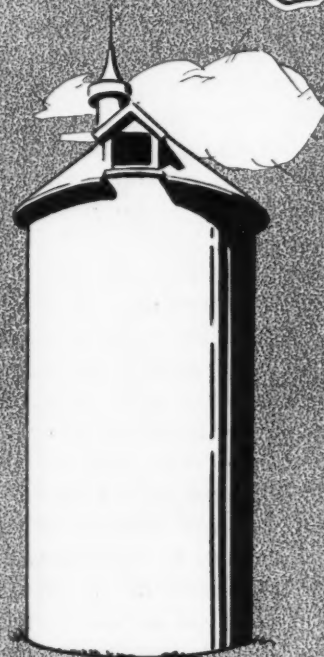
"There is no investment safer than improved farm land—land that is well cared for, well fenced and equipped with proper farm buildings. Farm values go up 50 per cent when the buildings are made up-to-date and adequate to the needs of the place."

—Wm. A. Radford in Dealers "Farm and Building Guide."

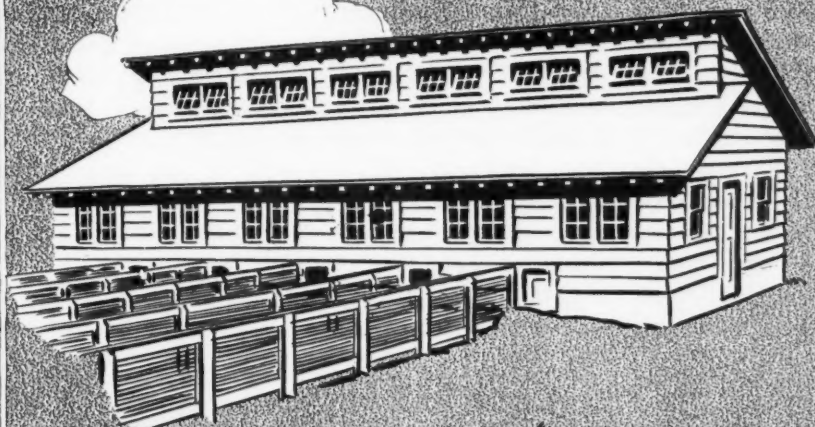
BUILD THIS FALL AND SAVE MONEY



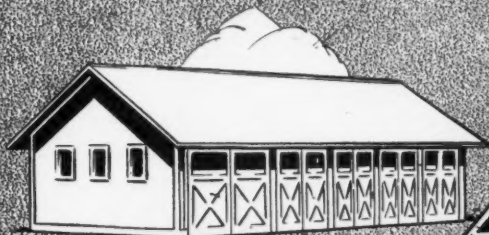
COST OF THIS BARN (IN 1914-1580 BU. OF WHEAT
TODAY-818 BU. OF WHEAT



COST OF THIS SILO
IN 1914-285 BU. OF CORN
TODAY-130 BU. OF CORN



COST OF THIS HOG HOUSE (IN 1914-36 HOGS
TODAY-21 HOGS



COST OF IMPLEMENT SHED
IN 1914 10% OF VALUE OF
IMPLEMENTS HOUSED
TODAY 6% OF VALUE OF
IMPLEMENTS HOUSED



COST OF THIS DWELLING (IN 1914 CROPS FROM 100 ACRES
TODAY CROPS FROM 35 ACRES

The Army Camps are built and workmen can now be had; so this is your chance to build that Barn, Implement Shed, Silo, or Dwelling House. If you have any Building Job in mind go to the lumberman and get the bill figured NOW. The price will surprise you. Building costs have not advanced in proportion to crop values, profits, or wages. The price of steel has just been cut in two. NOW is the time to Build!

The American Builder will furnish electros of this cut (any size desired) at cost to any Dealer or Builder wishing to use this picture for local advertising to promote building.

How Camp Devens Was Built at Ayer

DETAILS OF THE ORGANIZATION AND OF THE HUMAN SIDE OF THIS HUGE CONTRACT

By Peter F. O'Shea

THE largest of the new army cantonments is Camp Devens at Ayer, Mass. The most difficult topography is perhaps also at Ayer. Ayer is farthest of the cantonments from the source of lumber in the South, and farthest from the supply of redwood water pipes in the West. Yet it was ready ahead of the extraordinarily rapid schedule originally planned for it by the contractors. How did the contractors do it?

First, they had a regular organization on which to parallel the new organization which it was necessary to form. They could also contribute a certain number of their regular organization to the new job at Ayer without crippling the team work by which they were putting through their ordinary contracts. Second, each man knew his share and did it at the proper point and the proper time to make everybody else's share most effective. Third, each head of department or superintendent or foreman was anxious to be ready to begin the moment that the man before him left the way free, and he had no sooner begun, than he was speeded up by knowing that the next man would be along soon to do his part of the work. Fourth, there was undoubtedly an element of patriotism which speeded up the work tremendously. Unions came to quick agreements. Manufacturers hustled supplies, and railroads hustled shipping, and big companies loaned their executives, all because they knew every man and stick and minute meant cover for the soldier boys. However, with all the help in the world, the camp would never have been built so fast if men had not stood ready as fast as the lumber came in to eat it alive, and

their digestive organs had to be in pretty good order, as well as powerful. They had to use their heads as well as their hands. The best way to explain how it was done is to tell what was done.

On June 16 the contract was signed by Fred T. Ley for Fred T. Ley & Co., Inc., composed of three Ley brothers. On June 18 four regular Ley men came down to Ayer. They climbed to the top of one of the highest hills on the site and looked off. Nothing was to be seen but woods and a couple of small lakes, with the little white house of a farmer looking lost at one end and another little white house miles away at the other end. There the four men in a few hours sketched their plan of campaign. They were Frank B. Rogers, who was to be the general manager of this particular job; Armstrong, the head purchasing agent of the Fred T. Ley Co.; Crowley, who took over charge of all outside construction, and Al Gillis, who was to handle the carpenter work and other building construction. These men never left the job until it was done.

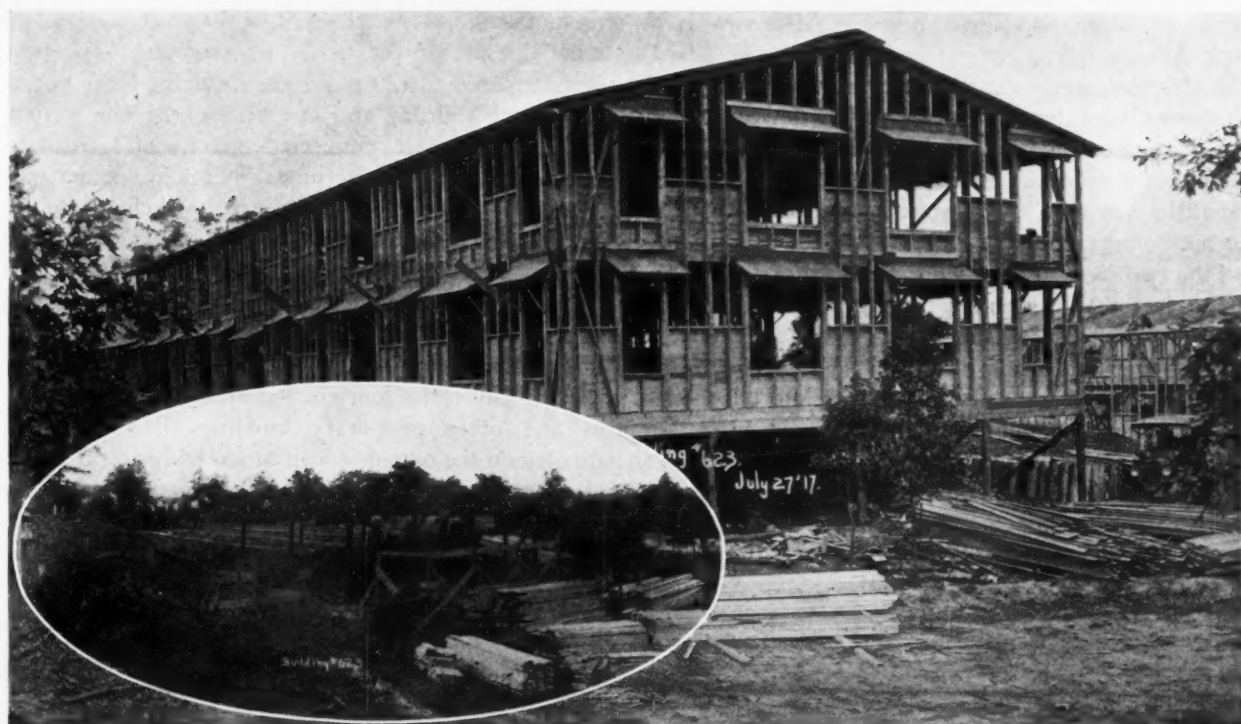
They sent the same day for carpenters enough to build an office. Armstrong, the assistant purchasing agent in the main office at Springfield, not only turned over his Springfield work to some one else while he spent the summer at Ayer, but brought down his traffic man, Ferguson. T. J. Moore, a time keeper, was brought in to take care of the time and pay department and both these men arrived next day, with the first of the material and the first of the workmen.

Certain material had been ordered on the 16th just after the contract was signed. In fact, the purchasing



Fred T. Ley & Co., Inc.
Contractors

Panorama of Cantonment at Ayer, Mass., on July 31st, Forty-five days after the building contract was signed. The Workmen's Barracks—Temporary Quarters to House the Construction Gang—are in the middle distance. Note telephone lines from Construction Offices.



Two Views of Building 623, a Typical Barracks. The small view photographed on July 20th, shows foundation posts driven and piles of lumber cut to size delivered on the job. One week later, on July 27th, we see the framework up and the building practically enclosed.

department had spent a day in shooting out a batch of gigantic orders from Springfield, before there was a man on the job, commencing while Fred T. Ley was blotting his signature on the contract. With these large orders to distant points for the main cantonment construction, went many small orders to towns near the site of the camp for the requisite material to build offices, shelters, and other works for the accommodation of the construction men. Ordered on Saturday, these commenced to arrive Monday on the ground,

being carried by auto truck and team from the railroad station.

Word had also been passed to the unions and centers of neighboring towns Saturday afternoon that men would be needed, and they arrived in sufficient quantities to handle the first material.

Among the men who arrived on the 20th was one who said he was a foreman. He was given the plans of an office building 350 feet long, with a corridor midway of the length and offices partitioned off all



U.S.A. CANTONMENT, AYER, MASS.

July 31st. 1917 Sec. 1

In the foreground to right is the Water Tower, with temporary water lines of two-inch wrought iron pipe laid on the ground leading to every part of the Camp. In the middle distance note the fleet of motor trucks awaiting their morning assignments. One hundred and forty motor trucks used on this job.

along each side, and told to go to it. After two days' work the building was completed on the 23rd. Already, however, occupants were moving into it and telephones were being installed while the carpenters were putting on the roof overhead. The New England Telephone company was accustomed to the speed at which the Ley men could work if necessary, for Ley has built offices and other construction for them before and the two were used to working together.

The fact that carpenters putting on roofs, sawing and hammering among the rafters saw that they were directly over the heads of men who in spite of the carpenters' speed were already talking into telephones beneath them, undoubtedly gave the carpenters an idea of the speed they would need. The pace was set for them. They were the first men to come in strange to the camp, not knowing the heads of the organization, not realizing before the rate of work needed to

trunks in all. A switchboard of 40 positions was installed in one of the newly built offices. This was soon increased to 120 positions, requiring three operators during the day and one all night. The switchboard is, of course, connected directly also with the switchboards of the government offices in another part of the camp and with a second private exchange which was installed in the commissary department, which had its own executive staff and purchasing agents. It takes some telephoning to scour up fresh eggs and vegetables from the surrounding country for thousands of men daily.

While Gillis, the construction man, was forcing offices and other temporary buildings into existence, Crowley on the outside construction had several superintendents busy forming gangs and getting after the special line of work put into the charge of each. He gave one man oversight of and responsibility for clear-



The Pipe Calking Plant at the Ayer Camp. The rule is that all pipe must be threaded and calked on the job. These were—by the hundred thousand; a regular department organized for this work.

get the contract done on time. Being started off at that pace, they soon took it as the usual thing on that job, and they passed the word and the spirit and the speed along to the others who followed them in. That is where the company saved itself a world of trouble by the two days' fast work of planning and preparedness on the part of the first men who went down to Ayer, and other heads who worked from Springfield during the day before it was possible to send the delegation to Ayer.

On Thursday, June 22nd amid the hammering overhead two trunk lines of telephones were in use from the office building, one to Boston and one to Springfield, besides trunks to the Ayer exchange and other towns. Later this number was increased to three trunks to Boston (distant 40 miles), two to Fitchburg, twelve miles, and two to Springfield, 60 miles, or 10

ing-out brush and trees from the places where railroads and dirt roads were to lead, and from the future sites of buildings. Another man followed with his gangs to build temporary roads, to facilitate the trucking of material. In some places hillocks had to be cut down or thru, in other places carloads of gravel had to be laid out in a dike across low ground.

Theoretically these roads were necessary before a truck could be sent out with a load of lumber or piping. But practically, if Crowley's sub-foreman didn't get where he was sent pretty early in the morning, he would find motor trucks with loads of lumber wading thru sand and climbing impossible places. The chauffeurs had been sent by Gillis, to whom they were responsible, to deliver definite material at definite places, and they delivered it, road or no road. Crowley's other gangs did the same thing. But the sight of

them was a spur to the road man to get busy and build a less heart-rending path for the trucks of which this was only a harbinger. That foreman knew that his special immediate first and only job at the present time was to get his road thru that particular place in time for other Ley men to bring the material prepared specially for the particular buildings, that another Ley man was due to put up at that place. As a rule, when a man knows just what his job is he gets it done. If he can't then he's done. Results are wanted, not only by the general manager and the head of the firm, but by the fellow workmen who are to take the next step.

Not that a man was expected to do the impossible, nor that the next man would fail to accept circumstances with a grin and a change to low gears until he surmounted the difficulties. The men who have been driven thru the camp from the beginning think some of the roads now are regular state highways, tho the mere sight of some of them is enough to jar the ribs out of a newcomer. They say that the stumps have either been knocked down or worn off level with the dirt.

If Crowley's road man couldn't build the desired road in time for the contemplated movement of Gillis' lumber, he would telephone back word to the office in time so that Gillis could plan to build in another direction. Telephones were like outposts in an army—they were stuck up somewhere on the extending horizon, on a shelf nailed on a post or a high tree stump, with a little roof above to keep showers from falling into them.

THE Kid has gone to the colors,
And we don't know what to say;
The Kid we have loved and cuddled
Stepped out for the Flag today.
We thought him a child, a baby,
With never a care at all;
But his country called him man-size—
And the Kid has heard the call.

He paused to watch the recruiting,
Where, fired by the fife and drum,
He bowed his head to Old Glory
And thought that it whispered "Come!"
The Kid, not being a slacker,
Stood forth with patriot-joy
To add his name to the rest—
And, God! we're proud of the boy!

The Kid has gone to the colors;
It seems but a little while
Since he drilled a schoolboy army
In a truly martial style.
But now he's a man, a soldier,
And we lend him a listening ear;
For his heart is a heart all loyal,
Unscourged by the curse of fear.

His dad, when he told him, shuddered;
His mother—God bless her!—cried;
Yet, blessed with a mother-nature
She wept with a mother-pride.
But he whose old shoulders straightened
Was granddad—for memory ran
To years when he, too, a youngster,
Was changed by the Flag to a man!
—WILLIAM M. HERSHELL.

On the other hand, if Gillis would not be ready for a given place, Crowley would try to have his road men build toward some place for which the lumber would be coming thru by the time the road was done. And he also had to build roads to cart pipes and cement and material for the other men in Crowley's outside construction department. The even progress of the work was secured by consultations between the superintendents and the general managers, other heads of departments being called in as necessary. Also Mr. Leo Ley of the firm spent two or three days a week at the camp forming a direct connecting link with the home office, and Fred T. or Harold Ley paid occasional visits. Within each construction department and between departments, direct co-operation was secured by daily conferences.

Now for all this work many men were on hand, but a great many more would be needed.

Ralph J. Smith was brought down from Springfield. It was his job to deliver men, just as it was Crowley's job to deliver roads, sewers, water and railroads, and Gillis' job to deliver finished buildings. Gillis sent a man to build Smith a little office to order, just at the gate of the camp, with the angle between the state road and the road to the camp fenced off like a corral to hold a crowd, and a narrow gangway leading out of it to the door so that the crowd couldn't all come in at once. Inside Smith sat on a broad box and waited for the lines of men. They came, Smith sorted them, into laborers, carpenters, timekeepers, etc, weeded some out, and hired almost all of them.

(Continued to page 134.)



A Typical Building Scene at Camp Devens, showing the hospital unit under construction. The site of this building was marked at first only by a stake bearing its number, 1123. This was used as a guide for the truck drivers in depositing the "Building" in front of it. The figure on horseback is a Squad Chief of Timekeepers.

"Don't forget that Reputation is a thing of slow growth and quick death"

—THE MAN FROM THE LUMBER YARD

The thing for each of our readers to do is to learn what he can best do and then do it, and make a reputation in the doing. It will hurt no one to take a lesson in looking forward from this writer.

—Editor.

ONE of the tragic things that I remember of my early experiences after leaving home, was the downfall of a respected contracting concern I had dealings with.

Their name was synonymous thruout the entire state with dependable work.

For years they had secured the cream of the business always taken at a good profit. About the time I got acquainted with them the senior member of the company was retiring and the junior taking the management. The junior was a very popular chap. He was a success and had money to spend. He spent it. His requirements became heavier and heavier.

Legitimate profits did not meet his requirements.

He traded on the reputation of his concern. He squeezed money from his workmen. He skimped on materials and weights. He was able to get away with it for a time, but he learned quickly that as you sow, so do you also reap. It was a short life for his business, even if he had a merry one himself.

The business that required eighteen years to build up went to pieces in less than three.

Stop! Look! Listen!

Twenty years ago the leading industries were food, clothing, shelter.

Several years since the statistician placed the industries as follows in relative importance: Food, laundry and cleaning, automobiles, clothing, shelter.

Why have the cleaning industry and the automobile trade been able to crowd in ahead of the building. I get my bread and butter with a few trimmings, out of the building line. My friends are in that work. I have studied on this question, and find only one answer.

It is, that the men behind these other enterprises have been more aggressive and had more initiative in catering to the whims of the people.

We know that every tenth person has an automobile, but can you grasp the thought of the cost in money, and energy, to popularize the automobile, to make it a necessity?

Why are the men in the building line less aggressive than in this infant industry of the gasoline wagon?

The Hen as an Advertiser

When the builder of an automobile changes his wheel base 2 inches or adopts a new electric starter he makes a loud noise and creates a desire for such a car.

When the builder of an office building installs a system of ventilation that will increase the efficiency

of the workers in that building, he modestly refrains from saying a word.

Possibly the goose egg is as good as the hen's egg, but the hen advertises.

Think it over.

Winter Months for the Recreation of Reading

Some claim that the ambitious man will study and work out mental problems no matter how fatigued he is physically.

I know the human nature of it. A human dynamo like Edison or Roosevelt may do it, but with us ordinary people there is too close a connection between the physical and mental.

When we are tired physically there is a slowing up of mental machinery.

The subscription department of the AMERICAN BUILDER notices the increase of new subscribers as the fall months come on. That means that the wet, rainy evenings, the cold, snowy days, are to be given to study and a full posting of the man on the up to the minute condition in the building field.

Because you had breakfast today does not



The man who finds recreation from the

"Every Season a Busy Season for BUILDERS"

mean you will not need and want breakfast tomorrow.

You have to recreate muscle tissue, also do you have to renew, *i.e.*, recreate brain tissue. Every minute that can be given to study of this kind will bring big returns because of the greater efficiency.

The man who finds recreation from the toil of the day in planning for the morrow takes the bumps out of his work.

The young man who renews his mental energy by getting in contact with the leading minds in his line of work or occupation will not be wearing fringes on his pants when the hair is worn off the top of his head.

The Meal Ticket During the Winter

As the Irishman would say, "There are many of my readers who will not read this."

Many of the boys who have been reading the *AMERICAN BUILDER* will be laying foundations to be physically fit for the journey to Berlin.

The winter of 1917 will not be as have some previous winters when there were not enough jobs to go around—not enough work to keep every one busy.

There should not be an idle day—hardly an idle hour this winter.

Embryo Contractor

I pick up as much information as I travel about in talking with the younger bunch who are getting wages as I do with the older chaps who draw salaries.

In one of the small Iowa cities, last February, I met a young man of about twenty years, and during our chat I learned that the job he was working the Novem-

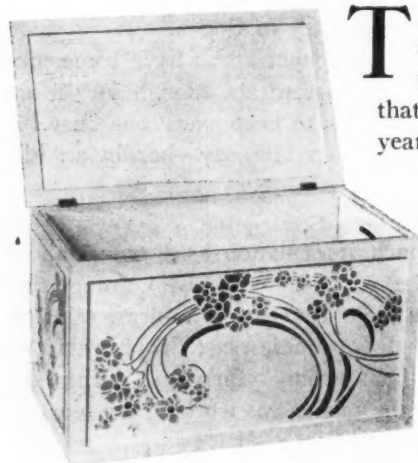
(Continued to page 132.)



tell of the day in planning for tomorrow, takes the bumps out his work. Now is the time to make plans for the coming winter.

Using Wallboard for Winter Work

HOW THE CONTRACTOR CAN PROVIDE AGAINST SLACK TIMES BY REMODELING OLD ROOMS AND MAKING NEW ONES WITH WALLBOARD



A Wallboard Suit Box.

THE test of the successful carpenter-contractor is that he is busy the year round. To do that, he must be sure of enough "inside work" to keep active while the snow flies and during stormy, rainy days of fall and spring when outside work is impossible.

This is an old problem that the carpenter faces from fall to fall. Yet it is not the hard task it used to be. Today the carpenter who is in touch with recent developments in the trade finds it much easier to lay out an attractive program of inside work because it is during these months that a great deal of wallboard work can be obtained.

When walls and ceilings were built and repaired almost exclusively with lath and plaster there was very little inside remodeling work for the carpenter. In fact, as long as those materials were used, it was difficult if not impossible to carry on such operations during the bad weather. But with the coming of wallboard, inside remodeling became as feasible in winter as in summer. Furthermore, it became a carpenter's job—not the plasterer's and paperhanger's.

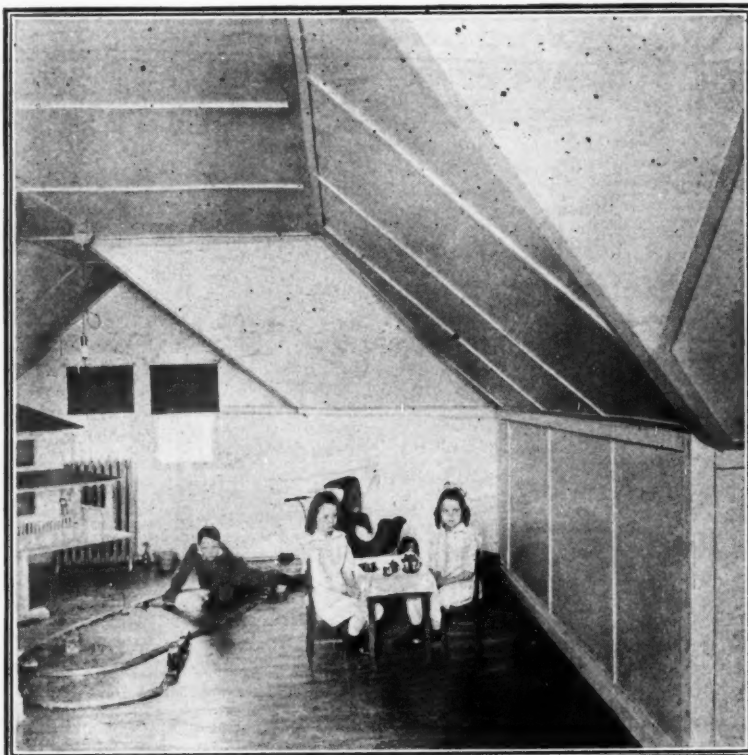
This fall there should be a great deal of such remodeling. The high cost of living and war conditions in general will cause many home owners to want one or more extra

rooms for renting or rooming. Houses that have an extra room in the attic or other waste space of course are more valuable from both the renting and selling viewpoint. And there is another great field in store ceilings.

The one item of converting empty attics into useful third stories is sufficient to keep a carpenter busy from December to Easter. It's a mussy, dirty, distracting job to fix up an attic when the house is occupied if lath, plaster and wallpaper are used. No house owner or tenant likes the idea. But just explain to them how easily it is done when wallboard is used. Let them see that there is no muss or dirt and that the entire work can be handle at one time—no waiting for plaster to dry—and you will find it a proposition that will appeal quite strongly to every home owner.

The possibilities of the attic are almost unlimited. Of course, the extra room or rooms can be used for bedrooms. Often a play room is desired for the children so that they will be out of mischief, where they can play to their heart's content without exposure to chills or colds. Or a room may be fixed up for the maid. Again, if there are billiard or pool enthusiasts in the house, the extra room can be used as a billiard room. Possibly the man of the house has a long cherished but seldom expressed desire for a little den or study. And if there is a phonograph in the house the attic can be readily finished into a home ball room.

This is the age of the small room and compact furniture. Many homes built a decade or generation ago have large rooms that could be rearranged into two or more rooms. Then there is always the room where the plaster is cracked and falling that could be made much more sightly and serviceable by a restoration with wallboard. Even the garage in winter time seems to feel the need of walls and ceilings and the car owner is glad to have it



Treat the Children to a Real Playroom in the Attic. Wallboard Makes This an Easy Winter Job.

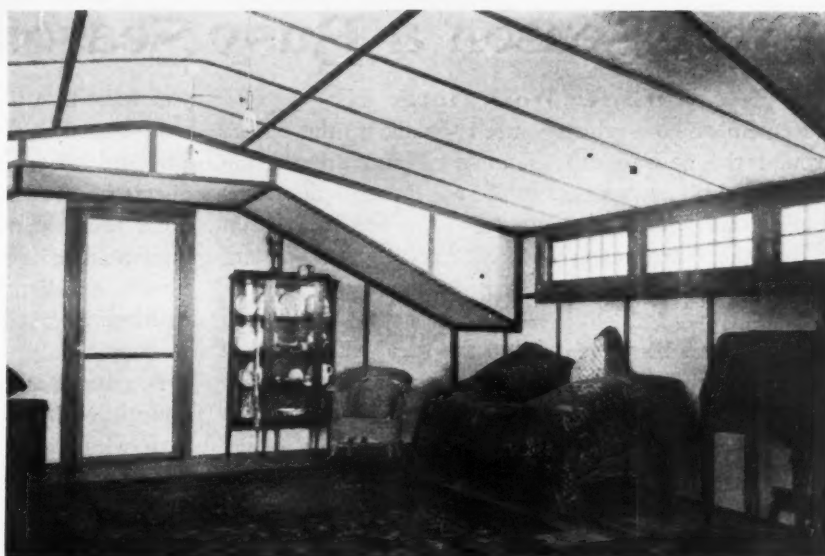
lined after he has spent a few cold hours in it when his automobile needed attention.

In the commercial field, as already mentioned, there is a big opportunity for ceiling work in stores, factories, offices, theatres or clubs. The factory office, particularly, seems to need more protection as the cold and stormy days arrive. There is generally considerable partitioning and remodeling to be done about a hotel in the fall and early winter. Another frequent opportunity for the carpenter is to build semi-permanent backgrounds with removable panels for store windows.

Even when the carpenter is not working elsewhere, he can put in his home hours to good advantage.

There is no end to the useful things to be made with wallboard at home—articles that find a ready sale during the holidays. Boxes, shelves, cabinets, book cases, etc., are readily made by the man who has a workable knowledge of woodworking and cabinet work.

In addition to being profitable work, wallboarding makes a pleasant comparison to outside carpentry. It is work in which the carpenter-contractor can take a just pride. One soon masters the few considerations necessary for planning an attractive room and soon gains a reputation for careful, thoughtful and thoro



The Owner, a Marshalltown, Iowa, Man, Thought This Was "Only Attle Space"—But It Turned Out to be One of the Best Rooms in the Bungalow.

work that often proves a valuable asset in extending a carpenter's business as a whole.

Many a carpenter's success has been due to building up a strong organization of good workmen who labor in harmony with the contractor's general policy. But it is hard to maintain such an organization when there are lay-offs during the bad weather months. This is another retrenchment not required of the contractor who specializes in wallboarding when the outside work is ended.

(Continued to page 116.)



Many a Third Floor as Well as Many a Basement Room Has Been Turned Into a Social Home Billiard Room by Means of Wallboard.

"Every Season a Busy Season for BUILDERS"

Winter Work Notes

Remember how grandma used to calk up the cracks around the door on the side porch and around the windows with newspapers or old rags when winter was coming on? Some of them still do it, and the reason is that there are not enough contractors and builders cashing in on the weather strip business.

There are still some folks in the rural districts who try to take a bath in a dishpan because nobody has reminded them of the fact that for nearly 15 years there has been a folding bath tub on the market which would give them the same convenience as a regular city bath tub. Somebody get on the job!

We wonder if every contractor and builder knows that houses on which creosoted stucco board is specified can be finished completely on the inside after the board has been applied to the outside of the walls, in freezing weather, but before the stucco has been applied. Thrifty contractors and builders look for jobs with this specification for their late fall and early winter building because they can go ahead with the interior plastering and trimming as soon as the stucco board is in place, leaving the stuccoing of the outside walls for the spring.

Why not put in some of your spare time during the winter months building Grandfather's clocks? There is a demand for these clocks and they are easy to build because one of the leading manufacturers of clock works will furnish you free blueprints showing the details of a number of beautiful designs when you pick out the movement which you desire.

Have you found out yet how many women in your neighborhood have been teasing their husbands for an outside-icing refrigerator? Better get busy and run this work in during the "dull season."

Don't forget that during the winter the average man thinks more about his personal comfort than at any other time of the year. If

you want him to "lend you his ears," talk about some improvement which will make him more comfortable. The suggestion is this: If you have access to a rural district or town not having a water sewage system, there are any number of persons who can easily be interested in indoor chemical closets. Their installation is excellent winter work and a double profit is realized.

A great many suggestions for winter work in concrete have been developed during recent years. The man who prefers to stay under cover can profitably utilize his time in the construction of fence posts and gate posts, concrete slabs, blocks, small tanks, rollers and troughs. A number of construction companies nowadays feature the fact that they specialize on winter concrete work. Every contractor should study carefully all authoritative literature pertaining to cold weather concreting which he finds available.

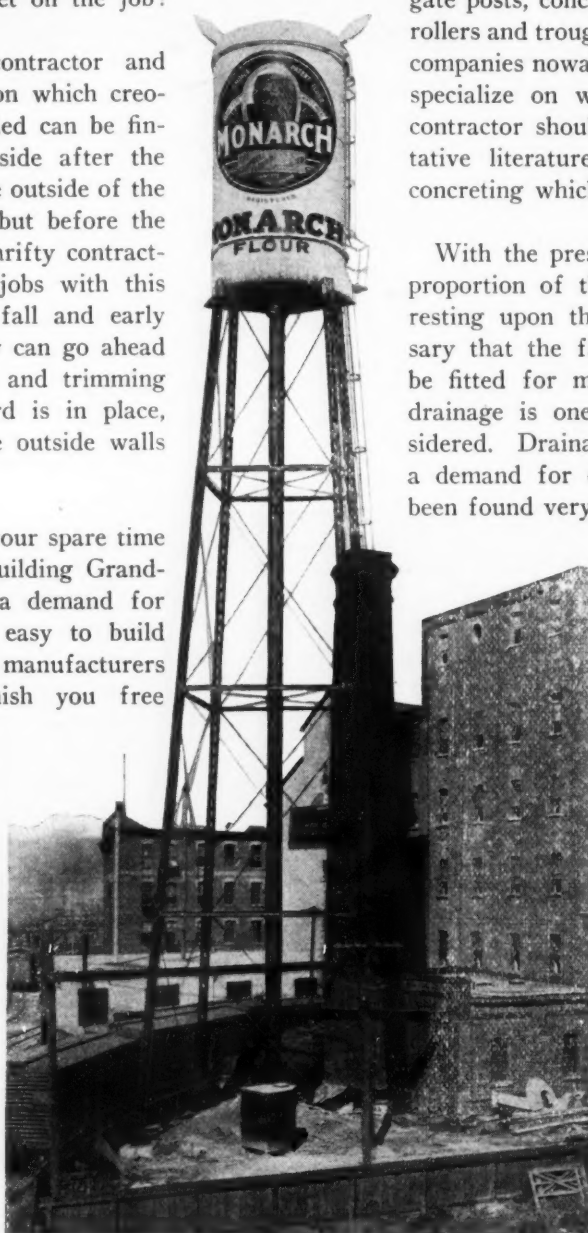
With the present responsibility for a large proportion of the food supply of the world resting upon the United States, it is necessary that the farming lands of this country be fitted for maximum production. Proper drainage is one factor which must be considered. Drainage of farming lands produces a demand for drain tile. Cement tile have been found very satisfactory for this purpose.

This opens up a field for the country contractor and builder, who is in close touch with the farmer, which will keep him busy the year around.

The contractor who closes in as many buildings as he can handle in the late fall is still busy well into the winter, finishing the interiors of these buildings. The fact that work is being extensively handled in this way is clearly indicated by the reports of manufacturers of builders' hardware in which it is invariably stated that there is no slackening in demand during the winter months.

Contractors and builders who have made money

(Continued to page 126.)



Forty Thousand Gallons of Advertising, 152 Feet High! This unique water tank was erected by the Canadian-Chicago Bridge & Iron Co., for the Campbell Flour Mills, Ltd., at Toronto, Ont. It furnishes water for their sprinkler system. The tank, representing their sack of flour, is 57 feet deep by 18 feet wide.—Frank C. Perkins.

Winter Stucco Work

Magnesite Plaster Does Not Freeze—Good Chance for Cold Weather Remodeling by Overcoating.

IT is a clearly established fact that if it were possible to carry on the same amount of building construction work in winter months as in the months from May to December, every person engaged in the building industry would be materially benefited.

Contractors, architects, manufacturers of building materials, building mechanics and laborers of all kinds would continue actively employed, causing no interruption to their earning and productive capacities. Office and yard employees in lumber and building supply companies would be kept busy the year round if building activity were sustained thruout the winter. Teams, trucks, hauling equipment, tools, etc., both of contractors and of supply concerns in which large sums are invested, would not be permitted to lie idle from four to five months each year during a non-productive period. Stocks of all kinds would be kept turning over, eliminating to no small degree the deterioration that at once sets in when materials lie unmoved and exposed to the elements and all would share in the prosperity and profits this increased activity would stimulate.

When considered from these viewpoints, no explanation need be ventured as to the reason why so much thought and such widespread effort has been expended to develop materials as well as ways and means that will permit a continuance of construction work at all seasons of the year, regardless of temperature.



Getting Ready for a Winter Remodeling Job, House to Be Overcoated with Magnesite Plaster.

Among the most uncertain and hazardous parts of winter construction has been that of plastic work, embracing exterior stucco and interior plastering. Of necessity, as plaster and stucco must be spread in two or three relatively thin coats, it becomes in reality a sheet of veneer. Being applied separately and usually held apart from solid walls of buildings and because of the large percentage of moisture contained in these materials, plasters composed of the various kinds of lime, portland cement, gypsums, etc., are vulnerable to the vicious attack of frost.

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Winter Weather Was no Bar to Progress on This Job. The Outside Plaster Was Put on During a Snowstorm Amounting Almost to a Blizzard.

Good Business to Talk Ventilation for Barns

By L. Klima

IN the days when barns were built of straw, or a little later when a few boards were put up with a roof over them for the purpose of housing the cattle, ventilation was practically unknown, or rather, a ventilating system for the purpose of moving air in and out of the building was unknown, and unnecessary.

Time has changed the type of the farm barn, and today we find barns being built almost as well as our

dows can be left open and in this way the ventilating system is not used to any extent where the building is left open. However, during the winter months the doors and windows are closed, and then it is necessary to have a circulation of air thru the building without reducing the temperature to any extent, and without causing draft on the animals.

Air should be changed in the ordinary stock room at least every 30 minutes during the winter months, and the temperature should be kept to a comfortable degree, which, in the dairy barn, is about 45 degrees. You have often seen the doors of a stable opened and the steam come rushing out, looking almost as if the building were afire. This is the excessive moisture that is thrown off by the animals at a very high temperature, and when it comes in contact with the cold atmosphere on the outside, it condenses and can be seen in the form of steam.

Each cow throws off 10 pounds of invisible moisture every 24 hours thru her nostrils and thru the pores of her body. This means that a barrel of water is thrown off every 24 hours from the ordinary herd of cattle in the ordinary modern barn.

As there is nothing in the barn to use as a motive power for moving this air, it is necessary to depend entirely on the difference in temperature in and outside of the building and the movement of air across the top of the ventilator or aerator.

The accompanying illustration shows the type of ventilator which is being used very extensively, and is made so as to eliminate any possibility of the wind striking into it; and for this reason always has a movement of air coming out of it. The harder the wind

(Continued to page 128.)

homes—tight walls, storm windows, tightly fitting doors, concrete floors, and ceilings made of matched lumber, so that the stock room today is almost as tight as the modern dwelling house.

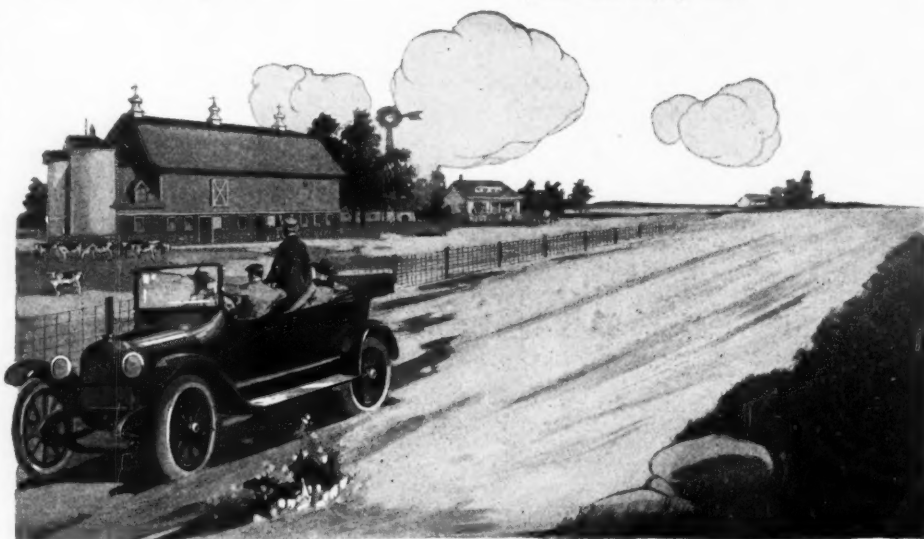
It has been found that by excluding the cold air from the stock room the animals do not require so much feed for keeping off the cold, and therefore the larger portion of the feed goes into milk, flesh and bone, and in this way there is a considerable saving in the cost of feed.

However, in shutting out this cold for the purpose of keeping the animals warm very little thought has been given to the fact that fresh air is absolutely necessary to the health and life of the animal.

Ventilation is always necessary in the modern barn, but during the summer months the doors and win-



As He Opens the Stable Door the Moist Vapor Comes Rushing Out Like Steam—Sign Ventilation Is Needed.



Did You Ever Notice the Passersby Stopping to Admire a Well Finished Group of Farm Buildings? It's the Ventilators Catch the Eye.



Erecting Metal Lumber Joists and Studs in Winter Weather; Residence of E. H. Flickinger, Yonkers, N. Y., F. W. Conner, Architect.

Metal Lumber Construction in Cold Weather

WINTER BUILDING PROVES NOT THEORETICAL BUT PRACTICAL ON YONKERS RESIDENCE JOB

By L. C. Bassett

DURING the past few years there has been a noticeable increase in the number of buildings under construction during the winter. And, despite the increased cost of material, the coming winter should be a busy one for contractors and builders.

In many localities, industries are rapidly expanding, attracting many high-grade office and factory men, with their families, from out of town. These families must be properly cared for, as housing facilities in most towns are usually inadequate to provide for any large influx of people. This condition calls for immediate building of homes.

People have been prosperous and many, now renting, want homes of their own. Perhaps they are laboring under the delusion that building cannot be successfully carried on during the winter months. In this case, then, it rests with you to convince the prospective building owners that their homes can be built during the winter—that the sooner the work is started, the sooner they will have the use of their homes.

The accompanying illustration shows a residence in Yonkers, N. Y., the floors and partitions thruout being constructed with metal lumber. This residence was erected during the winter, and the owner was well pleased with the work.

Metal lumber takes the place of wood studs and joists piece for piece. The members are pressed steel shapes. Each member is cut to size and fits the place for which it is intended. Erection is easily and quickly accomplished and no previous experience with the use of this material is necessary. It is used for all classes of buildings from the better class of residence to the large office building.

Winter building is not a theory, as it has been proven highly practical. There is no reason why your building operations should slump this winter. Go out after the contracts in the usual way. You may have to argue the feasibility of winter building, but this issue contains much convincing argument for it and illustrates and describes actual experiences which should be of assistance to you in your winter campaign.



Save Fuel by Building Warm

Newer Opportunities in Storm Doors, Sash, Insulation and Weather Stripping

By F. B. Mendoza

IN a recent issue of The Chicago Tribune, Henry M. Hyde, the well-known special writer for that journal, says: "Each year the United States digs some 600,000,000 tons of coal. The United States Bureau of Mines—the highest authority on the subject—estimates that at least 25 per cent of that amount, or 150,000,000 tons, are annually wasted, chiefly by improper stoking and by the lack of insulating material.

"Almost every consumer of coal in the United States could cut down his fuel bill at least one-quarter—probably nearly one-half—by making the improvements suggested."

The improvements suggested for dwellings, are, proper insulation of heating plants, double dampers in smoke pipes, stopping the escape of heat and the installation of storm doors, storm windows and weather strips.

Here is an opportunity for every contractor in the

(Continued to page 120.)

Go Out and Sell a Coal Chute

It May Lead to Other Repairs or Remodeling.

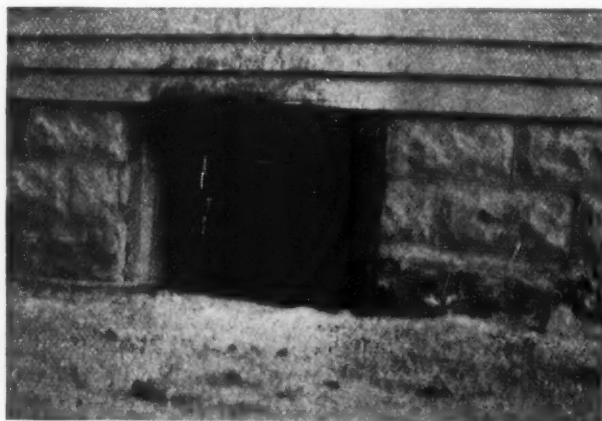
WHEN prices are high there are always some who choose to repair and remodel rather than to build new. And from the point of view of the builder these jobs are decidedly worth while encouraging.

The coal chute or need of a coal chute is one of the best leads for remodeling work at this season of the year. The winter's supply of coal is being put in and "that old coal bin window certainly does look rotten." The paint above and around it is grimy, the weather boarding is gouged, the frame is about

gone and the glass is broken. The rest of the building doesn't look so bad; but that coal bin window certainly is a disgrace.

The man who feels this way—and there are hundreds of him—wants to buy an iron coal chute, but doesn't know it. Probably doesn't know that there is such a thing as an iron coal chute on the market.

Suggest it to him. Show him how neat, secure and economical it is. Quote him on the coal chute installed; and when you go to do the job there will probably be other work for you to do.



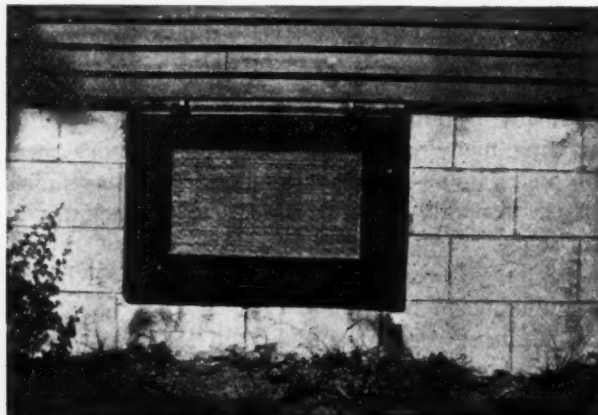
Bruised, Beaten and Besmerched! What a Chance for the Stray Cat or Sneak Thief!



Ah, This is Better—Here's What I Call a Job! It Protects the Building and the Builder's Reputation as Well.



The First Clapboard Finally Gave Out Entirely and Had to be Renewed. But It Isn't Right Yet.



Cast Iron Frame, Wire Glass for Light, An Ample Hopper when Open, Burglar Proof when Closed—That's a Coal Chute.



The Builder's Intentions Were Good, but He Missed Fire. As a Coal Bin Window It's a Failure.



This House Won't be Marred by Coal Smudges, Broken Glass or Frames. Its Fuel Window is Permanent.

Three Chances for the Coal Chute Salesman; and Three Good Jobs

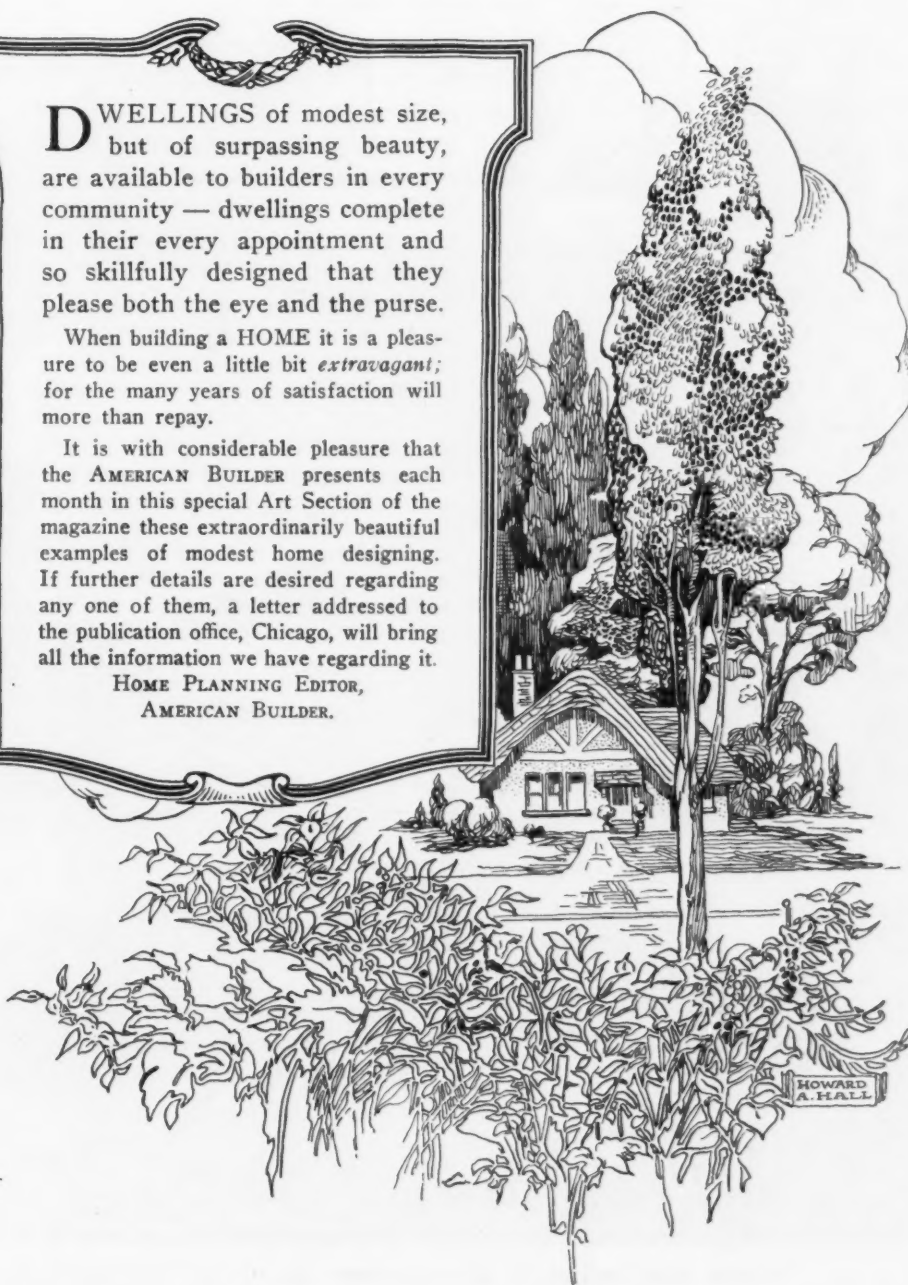
A PORTFOLIO *of* BEAUTIFUL HOMES

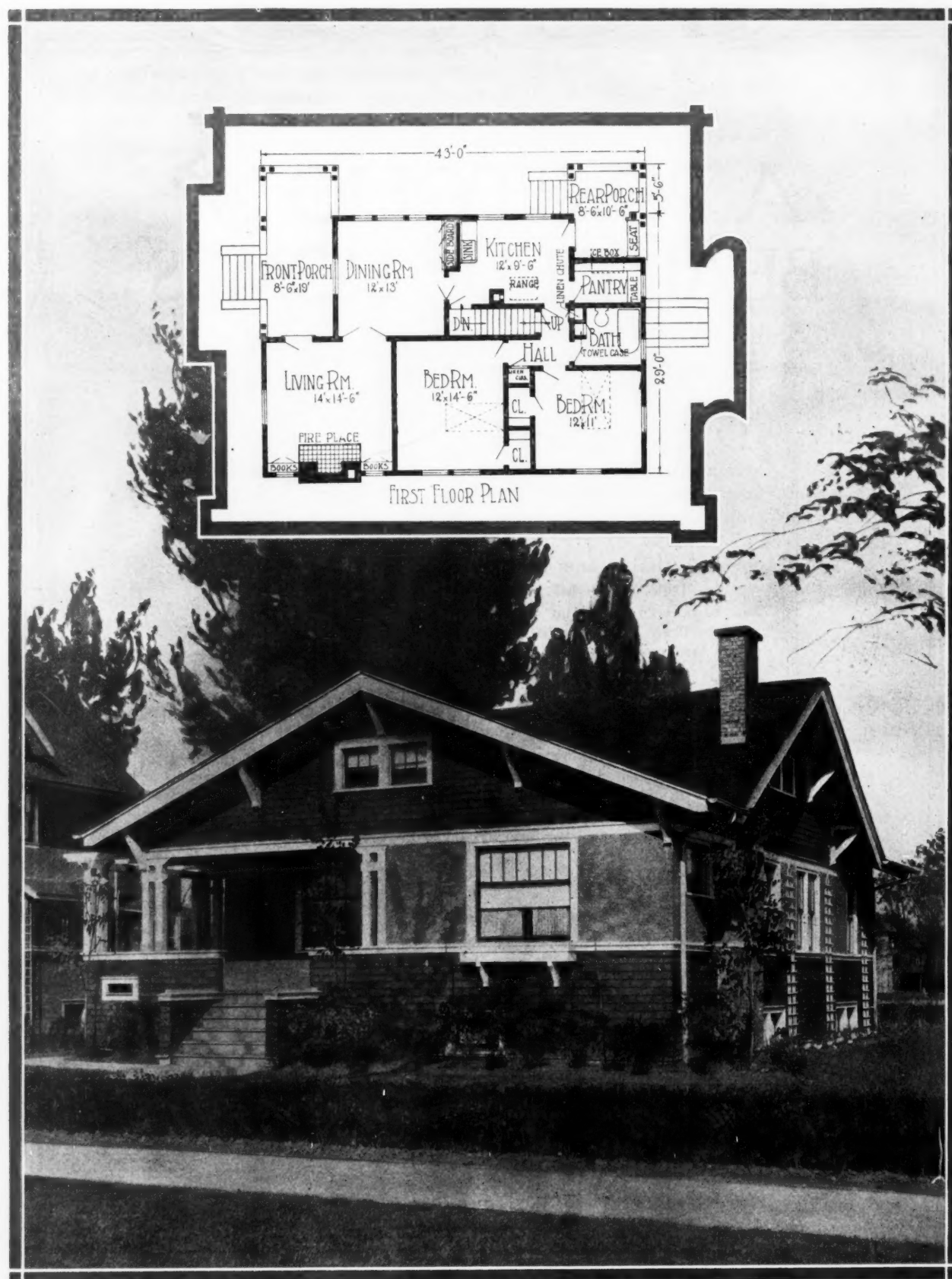
DWELLINGS of modest size, but of surpassing beauty, are available to builders in every community — dwellings complete in their every appointment and so skillfully designed that they please both the eye and the purse.

When building a HOME it is a pleasure to be even a little bit *extravagant*; for the many years of satisfaction will more than repay.

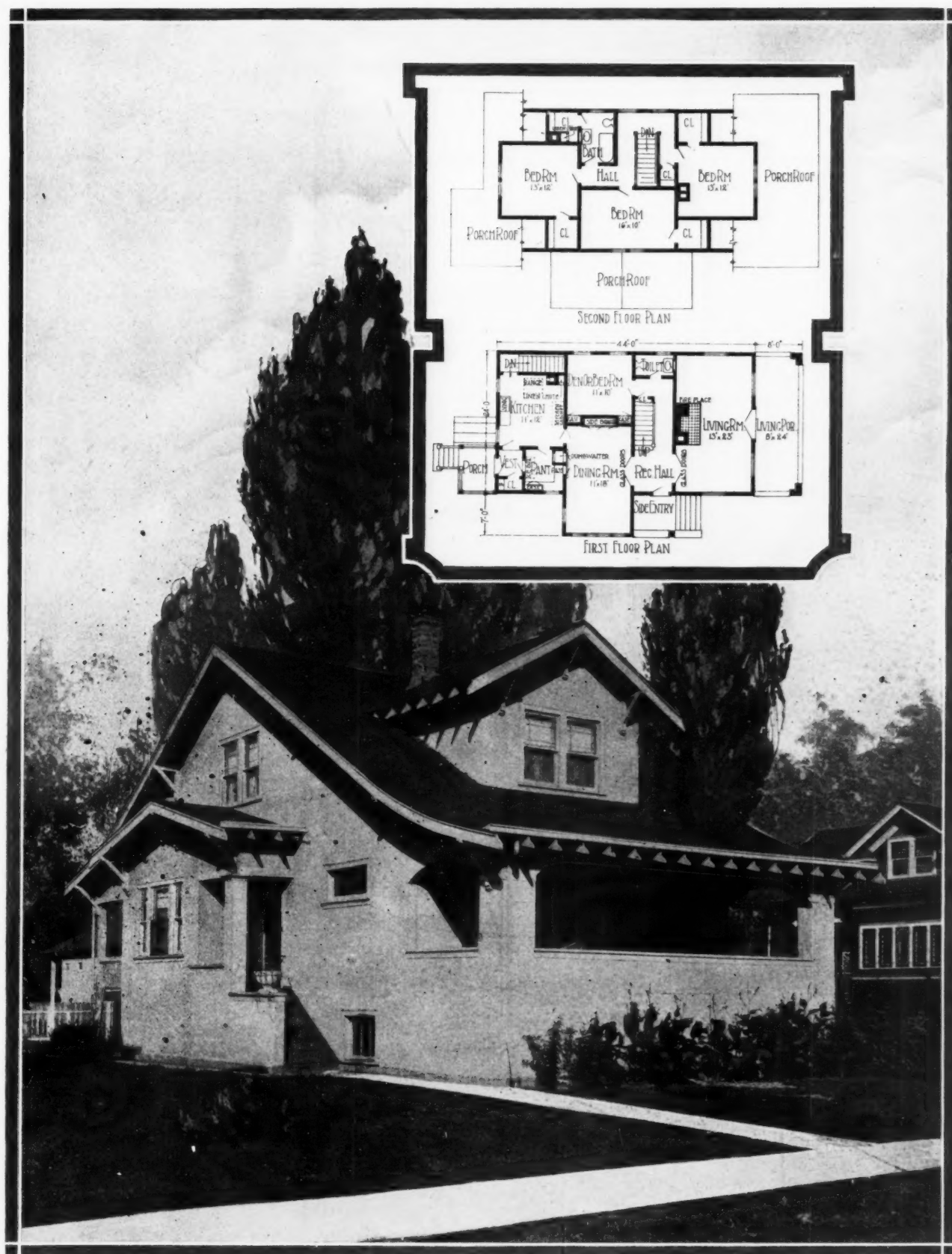
It is with considerable pleasure that the AMERICAN BUILDER presents each month in this special Art Section of the magazine these extraordinarily beautiful examples of modest home designing. If further details are desired regarding any one of them, a letter addressed to the publication office, Chicago, will bring all the information we have regarding it.

HOME PLANNING EDITOR,
AMERICAN BUILDER.

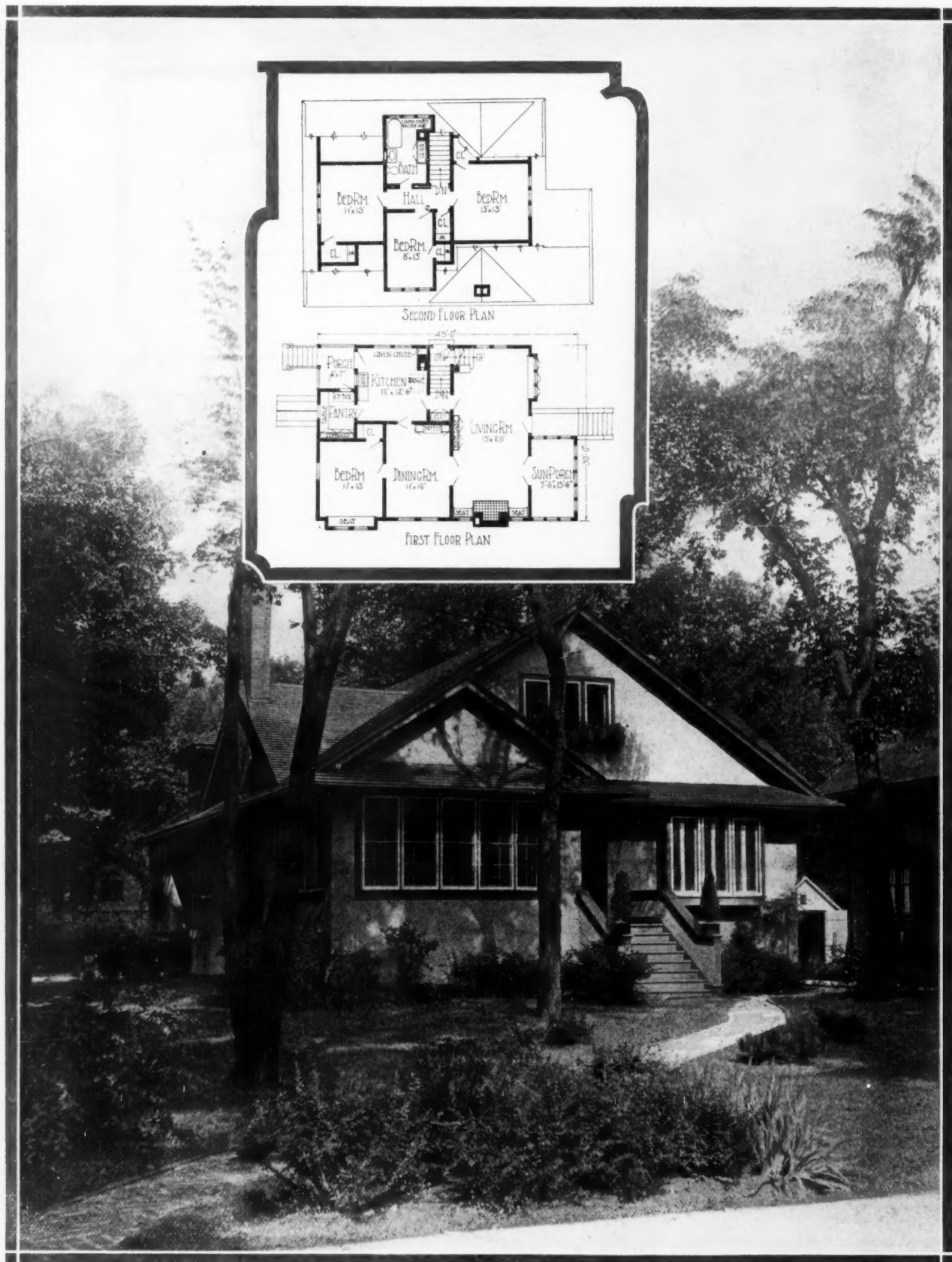




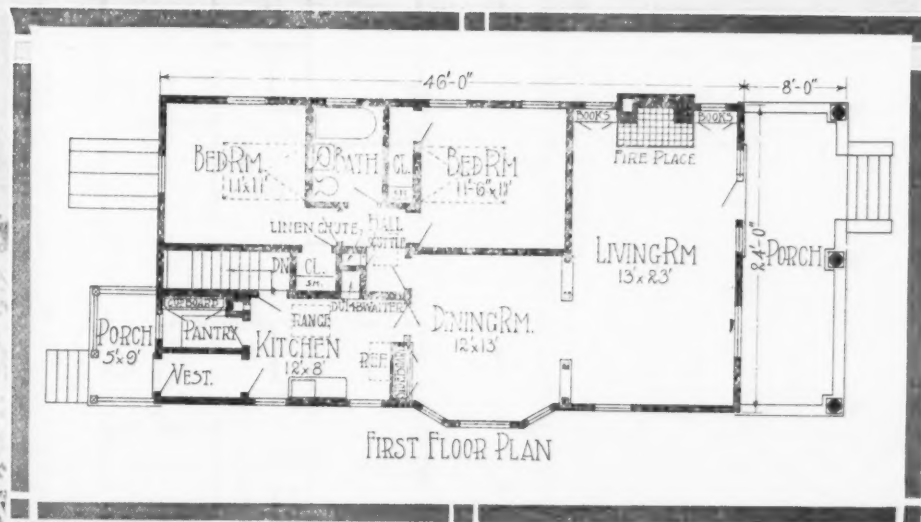
GABLE ROOF STUCCO AND SHINGLE BUNGALOW. By the use of a low-pitch combined gable roof ornamented with brackets and walls finished with a combination of stucco and shingle, the exterior of this little house has been given an appearance which can be judged only after high standards. Attractive features are not wanting on the inside of the house. The living room and the dining room are pleasantly arranged with French doors between. The kitchen with its adjoining pantry are very modern. There are two bedrooms with a handy bath. Notice the little seat on the rear porch. The size is 43 feet by 29 feet.



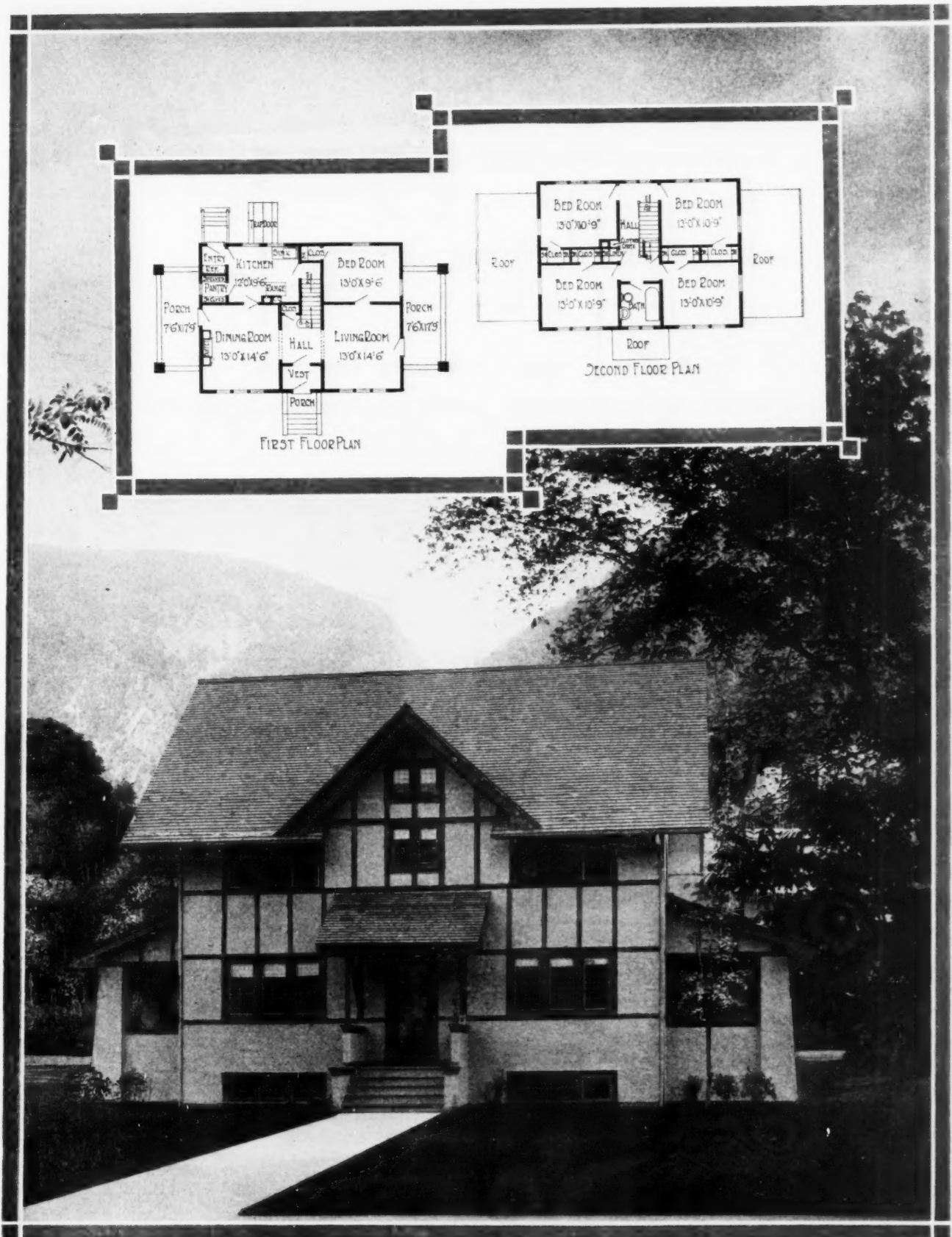
BEAUTIFUL STUCCO HOME OF SEVEN ROOMS. The exterior of this house, with its pure white walls, is attractive in every sense of the word. Attention is particularly directed to the design of the roof and also to the broad living porch across the front of the building. This latter feature is even more important from the viewpoint of comfort than from that of appearance. Within, there is a large, pleasant living room, a cozy den which might serve as a bedroom if necessity demands, a spacious dining room and an exceptional kitchen, on the first floor, and three bedrooms on the second floor. The size of the house is 44 feet by 31 feet, exclusive of the living porch, which is 8 feet wide by 24 feet in length.



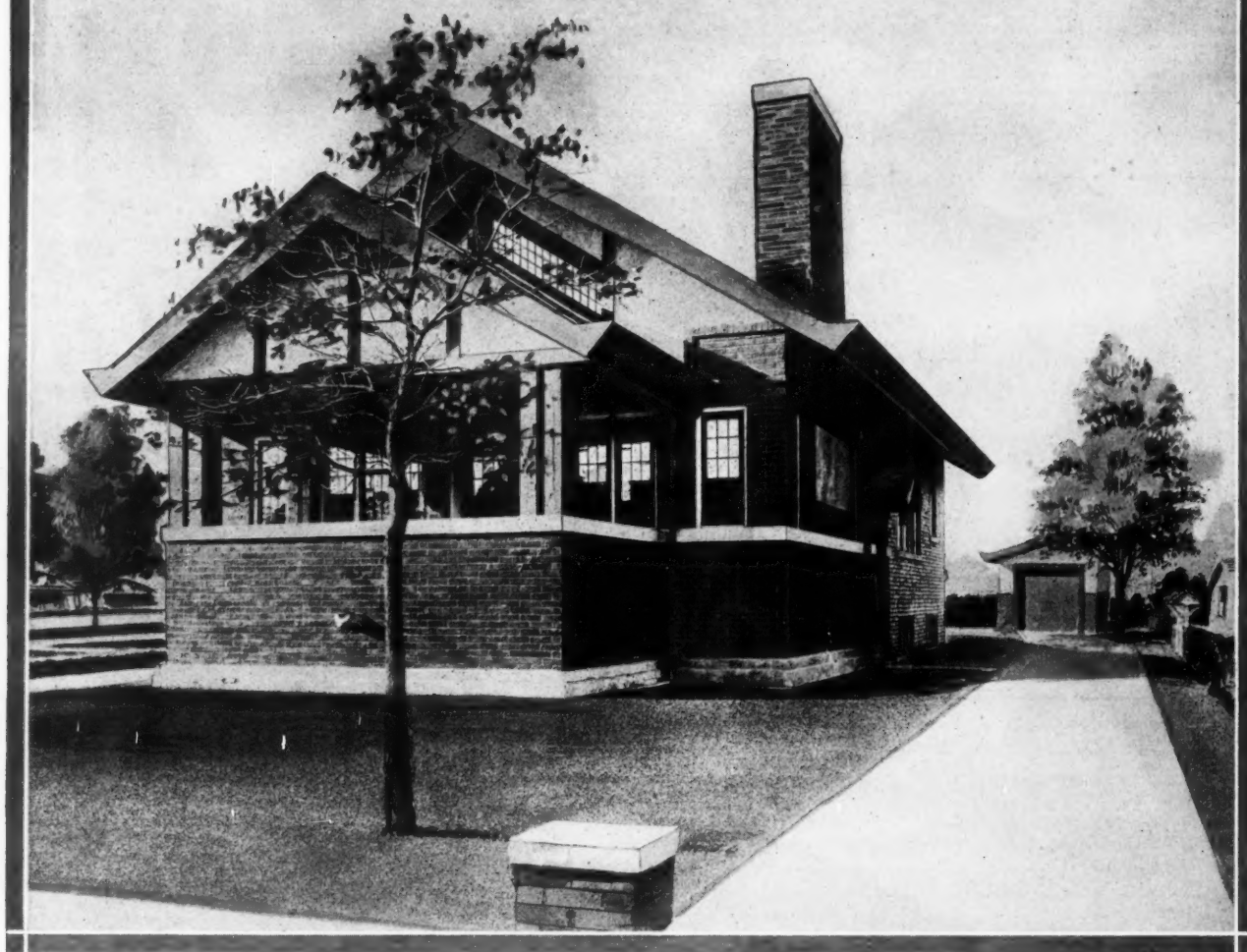
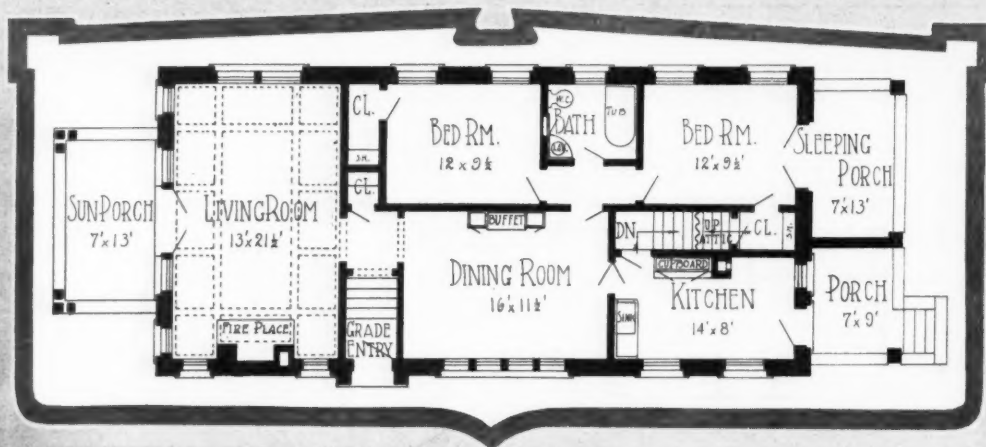
THOROLY MODERN HOUSE OF DIGNIFIED APPEARANCE. This dwelling carries the mien of an aristocrat among houses of the moderate size type. There are three things which seem to have accomplished this result. These are the box cornice gable roof, the distinctive windows and the large out-built chimney. Because of the predominating effect of the stained trim, which lends a rustic appearance, there is no tendency toward a monotony of uninteresting wall surface which is sometimes evident in houses finished with gray stucco. The rooms are, in every way, well arranged. The sun porch is a pleasant feature, as are also the several built-in seats which have been worked into the first floor design. The size is 45 feet by 30 feet.



SHINGLE-SIDED BUNGALOW OF FIVE ROOMS. On this five-room bungalow the walls have been finished thruout with stained shingles. The hip roof is decorated with a simple open cornice, this construction being used on the small dormers as well as the main roof. The walls, from the line of the window sills to grade, are given a slight batter, which adds greatly to the appearance of the building. The plan shows a cozy arrangement of rooms, including a well equipped kitchen, living room and dining room on the L plan, with colonnade, two bedrooms with the bath between. The building is 46 feet by 24 feet, not including the porches.



STUCCO HOUSE FOLLOWING THE ENGLISH TYPE. The trim appearance of this house is one of the noticeable features of the exterior. A great many people have selected the timbered stucco house as their favorite type of construction. The above house is 35 feet by 25 feet 6 inches and contains eight rooms. A balanced effect is obtained by placing two private porches at the ends of the house.



BRICK BUNGALOW WITH SUN PORCH AND SLEEPING PORCH. This beautiful little house is designed to provide all of the most modern features commonly associated with "big city" house construction, yet its size is such that it may be built on a narrow lot. Notice the large living room, sun porch, sleeping porch and bedroom arrangement. This house is 51 feet by 24 feet.

The "American Builder" Information Exchange

Will Help You With Your Contract Requirements

OUR Information Exchange believes it can render service and save our readers time and money on many of their contracts. We can tell you where to get that unusual item, can place before you full information concerning both standard goods you will need and improved specialties you may want, and can help you to secure prompt deliveries and right prices. Fill in coupon below, pin same to your business letterhead, and we will send all information we think would help you.

We have.....

We are figuring on.....
(cross out one not wanted)

entire contract
heating contract
plumbing contract
lighting contract
painting contract
masonry contract
concrete contract

(cross out those not wanted)

for building checked below and want all data on materials, equipment and specialties we will need.

	SIZE	TO COST ABOUT	Date Work is to Begin or Date Contract is to be Let.
<input type="checkbox"/> Dwelling House (City or Town).....			
<input type="checkbox"/> Farmhouse.....			
<input type="checkbox"/> Apartment House.....			
<input type="checkbox"/> Schoolhouse.....			
<input type="checkbox"/> Church.....			
<input type="checkbox"/> Theatre.....			
<input type="checkbox"/> Library.....			
<input type="checkbox"/> Public Garage.....			
<input type="checkbox"/> Bank Building.....			
<input type="checkbox"/> Hotel.....			
<input type="checkbox"/> Office Building.....			
<input type="checkbox"/> Store Building.....			
<input type="checkbox"/> Factory.....			
<input type="checkbox"/> Warehouse.....			
<input type="checkbox"/> Dairy Barn.....			
<input type="checkbox"/> Hog House.....			
<input type="checkbox"/> Two-Story Granary.....			
<input type="checkbox"/> Other Farm Building (What?).....			
<input type="checkbox"/> Any Other Building (What?).....			

CONSTRUCTION of said building is as checked below:

EXTERIOR WALLS

- ☐ All Frame
- ☐ Stucco
- ☐ Brick Veneer
- ☐ Brick (Solid)
- ☐ Structural Tile
- ☐ Concrete Blocks
- ☐ Monolithic Concrete
- ☐ Stone
- ☐ Glass (Store Fronts)
- ☐ Ornamental Terra Cotta

ROOFING

- ☐ Wood Shingles
- ☐ Asphalt Shingles
- ☐ Asbestos Shingles
- ☐ Metal Tile
- ☐ Clay Tile
- ☐ Slate
- ☐ Composition Roll
- ☐ Built up Tar and Gravel
- ☐ Tin Plate
- ☐ Canvas

SUPPORTING FRAME

- ☐ Stud and Joist
- ☐ Heavy Timber Mill
- ☐ Structural Steel
- ☐ Reinforced Concrete
- ☐ Self Supporting Plank
- ☐ On Concrete Piles
- ☐ Fireproof Floors
- ☐ Fireproof Partitions
- ☐ Metal Lath

INTERIOR FINISH

- ☐ Soft Wood
- ☐ Hardwood
- ☐ Wallboard
- ☐ Marble
- ☐ Metal Ceilings and Walls
- ☐ Metal Doors
- ☐ Metal Windows
- ☐ Metal Trim
- ☐ Metal Grilles, etc.
- ☐ Composition Flooring

SPECIALTIES, FIXTURES AND EQUIPMENT NEEDED

HEATING PLANT

- ☐ Warm Air Furnace
- ☐ Pipeless Furnace
- ☐ Steam, Direct Radiation
- ☐ Steam, Blower System
- ☐ Hot Water System
- ☐ Vapor System
- ☐ Fireplaces

PLUMBING

- Indicate number of Fixtures needed
- Closets..... Bathtubs.....
- Shower Baths..... Urinals.....
- Lavatories..... Kitchen Sinks.....
- Laundry Tubs..... Slop Sinks.....
- Drinking Fountains.....
- Chemical Closets.....

WATER SUPPLY—for Country Locations
What Capacity Needed?.....

LIGHTING AND LIGHTING FIXTURES

- Municipal Service {electricity ☐
- Do you desire quotation on Fixtures?.....
- Private Lighting Plant to be installed,
- Electricity..... Acetylene.....
- Gasoline.....

ELEVATORS

- Passenger..... Freight.....
- Dumb Waiters..... Ash Lifts.....
- AUTOMATIC SPRINKLER SYSTEM.....
- SCHOOL, CHURCH OR THEATRE EQUIPMENT

- Seats, Pews or Opera Chairs.....
- Blackboards.....
- Library Shelving.....
- Rolling Partitions.....
- Bank Vaults and Safes.....
- Steel Lockers.....

FARM BUILDING EQUIPMENT

- Stanchions for..... cows
- Stock Pens.....
- Stalls for..... horses
- Stock Watering Buckets.....
- Feed and Litter Carriers.....
- Cupola Ventilators.....
- Skylights.....
- Hay Track and Carrier.....
- Barn and Garage Door Hangers.....
- Cup Elevators for Corn and Grain.....
- Lightning Protection.....
- Studding Sockets.....
- Roof Windows.....

BUILDERS' HARDWARE

- Burglar Alarms.....
- Door Checks.....
- Caseament Adjusters.....
- Ventilating Sash Operators.....
- Panic Bolts.....
- Weatherstrips.....
- Coal Chutes.....
- Sidewalk Doors.....
- Prism Lights.....
- Refrigerators, Hotel or Market.....
- Refrigerators, Mechanical.....
- Fire Escapes.....
- Fire Shutters.....

HOUSEHOLD UTILITIES

- Garbage Incinerators.....
- Package Boxes.....
- Disappearing Stairs.....
- Disappearing Beds.....
- Sleeping Porch Sash.....
- Refrigerators, Outside Icing.....
- Vacuum Cleaning System.....
- Clothes Dryer.....

Note Here Any Special Requirements Not Marked Above.

.....
.....
.....
We {are
are not} acting as Architects as well as Builders on this job.
Mail the above to
"AMERICAN BUILDER" INFORMATION EXCHANGE
1827 Prairie Avenue, Chicago

Name.....
Street No. or P. O. Box.....
Town.....
State.....

See Other Side for Equipment, Machinery, Tools and Building Materials Needed

The "American Builder" Information Exchange

Data Sheet (Continued)

I desire information regarding the Building Materials, Equipment, Machinery and Tools checked, for which I am now in the market.

BUILDING MATERIALS

- | | | | |
|---|--|--|--|
| <input type="checkbox"/> Art Glass | <input type="checkbox"/> Fireproofing | <input type="checkbox"/> Paints, Fire Retardant | <input type="checkbox"/> Sash Pulleys |
| <input type="checkbox"/> Awning Cloth | <input type="checkbox"/> Fireproof Shutters | <input type="checkbox"/> Pipe, Conductor | <input type="checkbox"/> Screen Wire Cloth |
| <input type="checkbox"/> Battens, Metal | <input type="checkbox"/> Flooring, Composition | <input type="checkbox"/> Pipe, Steel | <input type="checkbox"/> Screens, Window and Door |
| <input type="checkbox"/> Beds, Disappearing | <input type="checkbox"/> Flooring, Hardwood | <input type="checkbox"/> Pipe, Warm Air Furnace | <input type="checkbox"/> Sheathing Papers |
| <input type="checkbox"/> Boiler and Pipe Covering | <input type="checkbox"/> Floor Finish | <input type="checkbox"/> Pipe, Vitriified Clay | <input type="checkbox"/> Sheet Metal Work, Galvan-
ized |
| <input type="checkbox"/> Boilers, Heating Plant | <input type="checkbox"/> Floor Hardeners | <input type="checkbox"/> Plaster, Gypsum or Hardwall | <input type="checkbox"/> Shingle Stains |
| <input type="checkbox"/> Bolts, Expansion | <input type="checkbox"/> Floor Hinges | <input type="checkbox"/> Plaster Board | <input type="checkbox"/> Skylights |
| <input type="checkbox"/> Brick, Common | <input type="checkbox"/> Furnaces, Warm Air | <input type="checkbox"/> Plaster Blocks, Partition | <input type="checkbox"/> Slate Blackboards |
| <input type="checkbox"/> Brick, Face | <input type="checkbox"/> Garbage Burners | <input type="checkbox"/> Plate Glass | <input type="checkbox"/> Slate, Structural |
| <input type="checkbox"/> Brick, Fire | <input type="checkbox"/> Garage Door Hardware | <input type="checkbox"/> Plumbing Fixtures | <input type="checkbox"/> Sound Deadeners |
| <input type="checkbox"/> Building Papers | <input type="checkbox"/> Hay Track | <input type="checkbox"/> Prism Lighting | <input type="checkbox"/> Store Front Construction |
| <input type="checkbox"/> Calcimine | <input type="checkbox"/> Heaters, Instantaneous | <input type="checkbox"/> Radiators | <input type="checkbox"/> Structural Steel |
| <input type="checkbox"/> Caulking and Glazing Com-
pound | <input type="checkbox"/> Heaters, Tank | <input type="checkbox"/> Refrigerators, Outside Icing | <input type="checkbox"/> Stucco |
| <input type="checkbox"/> Ceilings, Metal | <input type="checkbox"/> Insulating and Deadening
Materials | <input type="checkbox"/> Reinforcing Bars | <input type="checkbox"/> Tanks, Cypress |
| <input type="checkbox"/> Cement, Portland | <input type="checkbox"/> Lighting Fixtures | <input type="checkbox"/> Registers | <input type="checkbox"/> Tanks, Steel |
| <input type="checkbox"/> Coal Chutes | <input type="checkbox"/> Lighting Systems | <input type="checkbox"/> Roofing, built up Tar and
Gravel | <input type="checkbox"/> Terra Cotta, Ornamental |
| <input type="checkbox"/> Closets, Chemical | <input type="checkbox"/> Lightning Rods | <input type="checkbox"/> Roofing, Canvas | <input type="checkbox"/> Tile, Clay Structural |
| <input type="checkbox"/> Columns, Porch, etc. | <input type="checkbox"/> Limestone | <input type="checkbox"/> Roofing, Clay Tile | <input type="checkbox"/> Tile, Floor |
| <input type="checkbox"/> Concrete Inserts | <input type="checkbox"/> Linseed Oil | <input type="checkbox"/> Roofing, Ready Roll | <input type="checkbox"/> Varnish |
| <input type="checkbox"/> Creosote | <input type="checkbox"/> Mantels, Wood | <input type="checkbox"/> Roofing, Shingles, Asbestos | <input type="checkbox"/> Ventilators |
| <input type="checkbox"/> Door Track and Hangers | <input type="checkbox"/> Metal Columns | <input type="checkbox"/> Roofing, Shingles, Asphalt | <input type="checkbox"/> Wallboard |
| <input type="checkbox"/> Doors, Hardwood Veneer | <input type="checkbox"/> Metal Lath | <input type="checkbox"/> Roofing, Shingles, Metal | <input type="checkbox"/> Wall Ties |
| <input type="checkbox"/> Doors, Fire-Resisting | <input type="checkbox"/> Metal Lumber | <input type="checkbox"/> Roofing, Shingles, Wood | <input type="checkbox"/> Waterproofing |
| <input type="checkbox"/> Dumb Waiters | <input type="checkbox"/> Mortar Colors | <input type="checkbox"/> Roofing, Slate | <input type="checkbox"/> Water Supply Plants |
| <input type="checkbox"/> Elevating Machinery, Gran-
ary | <input type="checkbox"/> Nails, Cut Iron | <input type="checkbox"/> Roofing, Tin | <input type="checkbox"/> Windows, Casement |
| <input type="checkbox"/> Enamel, White | <input type="checkbox"/> Nails, Galvanized | <input type="checkbox"/> Safety Treads | <input type="checkbox"/> Windows, Reversible |
| <input type="checkbox"/> Fireplace Fixtures | <input type="checkbox"/> Paints | <input type="checkbox"/> Sash, Steel | <input type="checkbox"/> Wire Glass |
| | | | <input type="checkbox"/> Wood Dye |

CONTRACTORS' EQUIPMENT

- | | | | |
|--|---|--|---|
| <input type="checkbox"/> Air Compressors | <input type="checkbox"/> Chutes, Concrete | <input type="checkbox"/> Gravel Washing Plants | <input type="checkbox"/> Saw Rigs |
| <input type="checkbox"/> Back Fillers | <input type="checkbox"/> Column Clamps | <input type="checkbox"/> Hoists, Electric | <input type="checkbox"/> Scaffold Brackets |
| <input type="checkbox"/> Bar Benders | <input type="checkbox"/> Concrete Tamper | <input type="checkbox"/> Hoists, Gasoline or Steam | <input type="checkbox"/> Scrapers |
| <input type="checkbox"/> Blocks and Tackle | <input type="checkbox"/> Contractors' Lights | <input type="checkbox"/> House Moving Trucks | <input type="checkbox"/> Screens, Sand and Grave |
| <input type="checkbox"/> Buckets, Dredging and Exca-
vating | <input type="checkbox"/> Cranes, Locomotive | <input type="checkbox"/> Jacks | <input type="checkbox"/> Shovels, Steam |
| <input type="checkbox"/> Cableways | <input type="checkbox"/> Crushers and Pulverizers | <input type="checkbox"/> Ladders | <input type="checkbox"/> Sidewalk Forms |
| <input type="checkbox"/> Cars, Dumping and Indus-
trial | <input type="checkbox"/> Derricks | <input type="checkbox"/> Loaders, Wagon | <input type="checkbox"/> Tractors |
| <input type="checkbox"/> Carts, Concrete | <input type="checkbox"/> Drills | <input type="checkbox"/> Mixers, Cement and Concrete | <input type="checkbox"/> Trailers, Automobile or
Truck |
| <input type="checkbox"/> Cement Block Machines | <input type="checkbox"/> Engines, Gas | <input type="checkbox"/> Mixers, Mortar | <input type="checkbox"/> Transits and Levels |
| <input type="checkbox"/> Cement Ornamental Molds | <input type="checkbox"/> Engines, Steam | <input type="checkbox"/> Motor Trucks | <input type="checkbox"/> Typewriters |
| <input type="checkbox"/> Cement Tile Machines | <input type="checkbox"/> Floor Scrapers | <input type="checkbox"/> Pile Driving Machinery | <input type="checkbox"/> Wagons, Dumping |
| | <input type="checkbox"/> Floor Surfacers, Electric | <input type="checkbox"/> Pumps, Contractors' | <input type="checkbox"/> Wheelbarrows |
| | <input type="checkbox"/> Forms, Steel, for Concrete | <input type="checkbox"/> Salamanders | |

POWER SHOP EQUIPMENT

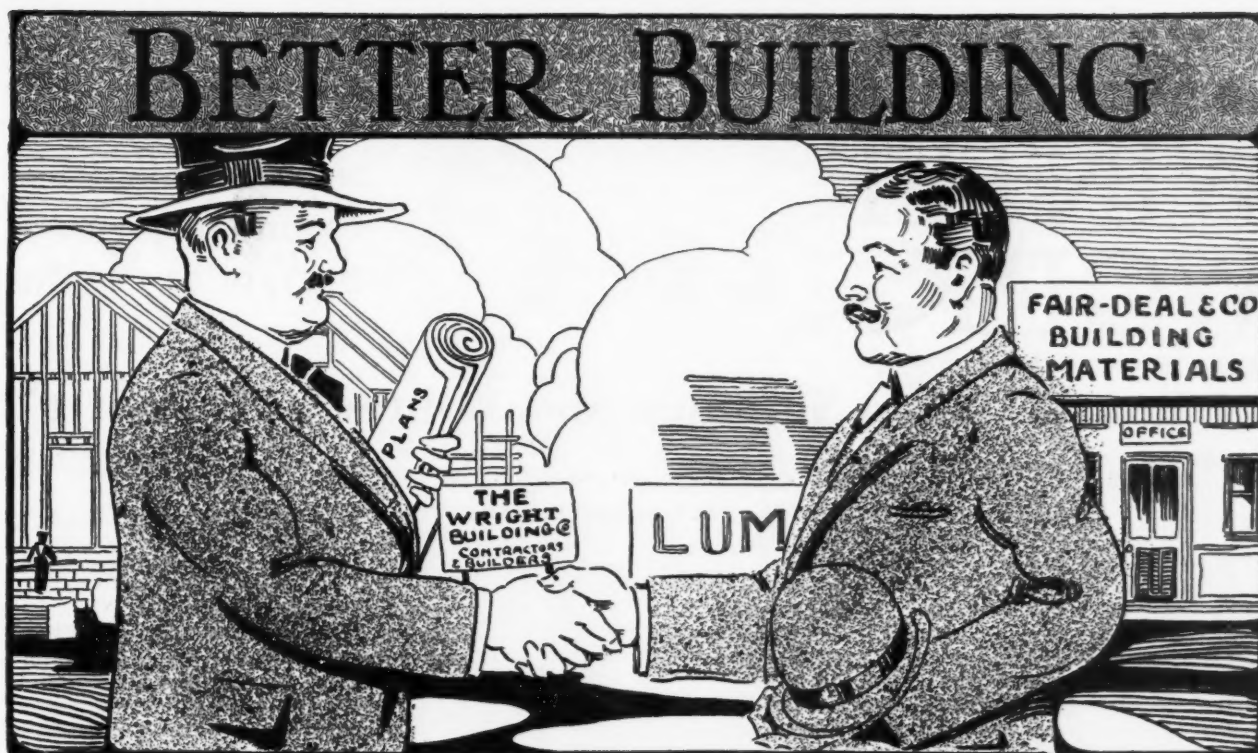
- | | | | |
|--|---|--|---|
| <input type="checkbox"/> Hand and Foot Power
Machines | <input type="checkbox"/> Dry Kiln | <input type="checkbox"/> Grinders | <input type="checkbox"/> Sanders |
| <input type="checkbox"/> Electric Motors | <input type="checkbox"/> Dust Collecting System | <input type="checkbox"/> Jointers | <input type="checkbox"/> Sash Trimmers |
| <input type="checkbox"/> Gas Engines | <input type="checkbox"/> Band Saws | <input type="checkbox"/> Lathes | <input type="checkbox"/> Shapers |
| <input type="checkbox"/> Safety Guards | <input type="checkbox"/> Borers | <input type="checkbox"/> Mortisers | <input type="checkbox"/> Tenoners |
| <input type="checkbox"/> Shop Trucks | <input type="checkbox"/> Saw Tables | <input type="checkbox"/> Moulders | <input type="checkbox"/> Rubbing Machines |
| <input type="checkbox"/> Pulleys | <input type="checkbox"/> Swing Cut Off Saws | <input type="checkbox"/> Planers | <input type="checkbox"/> Cutter Heads |
| <input type="checkbox"/> Glue Pots and Clamps | <input type="checkbox"/> Saw Rigs | <input type="checkbox"/> Bench Planers | <input type="checkbox"/> Machine Knives |
| | <input type="checkbox"/> Combination Woodworker | | |

MECHANICS' TOOLS

- | | | | |
|--|--------------------------------------|---|---|
| <input type="checkbox"/> Augur and Bits | <input type="checkbox"/> Gauges | <input type="checkbox"/> Mortisers, Lock | <input type="checkbox"/> Sharpening Stones |
| <input type="checkbox"/> Braces | <input type="checkbox"/> Gimlets | <input type="checkbox"/> Planes | <input type="checkbox"/> Shingle Nailers, Automatic |
| <input type="checkbox"/> Cement Workers' Tools | <input type="checkbox"/> Grinders | <input type="checkbox"/> Pliers | <input type="checkbox"/> Shovels |
| <input type="checkbox"/> Chests, Tool | <input type="checkbox"/> Hammers | <input type="checkbox"/> Plumbs | <input type="checkbox"/> Squares |
| <input type="checkbox"/> Chisels | <input type="checkbox"/> Hatchets | <input type="checkbox"/> Rules | <input type="checkbox"/> Tape Lines |
| <input type="checkbox"/> Clamps | <input type="checkbox"/> Lanterns | <input type="checkbox"/> Saws | <input type="checkbox"/> Trowels |
| <input type="checkbox"/> Compasses | <input type="checkbox"/> Levels | <input type="checkbox"/> Saw Sharpening Tools | <input type="checkbox"/> Vises |
| <input type="checkbox"/> Files | <input type="checkbox"/> Mitre Boxes | <input type="checkbox"/> Screw Drivers | <input type="checkbox"/> Wrenches. |

Fill in Your Name and Address on Other Side of This
Sheet and Mail to

"American Builder" Information Exchange
1827 Prairie Avenue, Chicago



Dealer-Contractor Good-Will Best for Building

Car-Load Buying Gives Local Dealer the Business

THE retail lumber dealers of the United States are spending at least \$700,000 yearly for advertising in their local papers," said R. B. Goodman, acting president of the National Lumber Manufacturers' Association, in a recent address. He went on to say that at least 50 per cent of the total lumber cut of the United States passes thru the hands of the retail dealers, and that the service performed by the retailers thru buying in carload quantities the great variety of special items, from shingles to interior finish, that must be assembled for a single building, together with their expert knowledge of materials, enables them to sell to the home builder more cheaply than it would be possible for the sawmill men to do.

The retailer carries in stock everything that is needed, and if anything goes wrong the buyer does not have to write letters about it. Matters are settled face to face.

This Idea Will Sell More Lumber

BUY a nice hardwood floor for your kitchen—\$6.76, nails and all included."

This idea, suggested by H. R. Isherwood of the National Lumber Manufacturers' Association when carried into effect by retailers is proving a success.

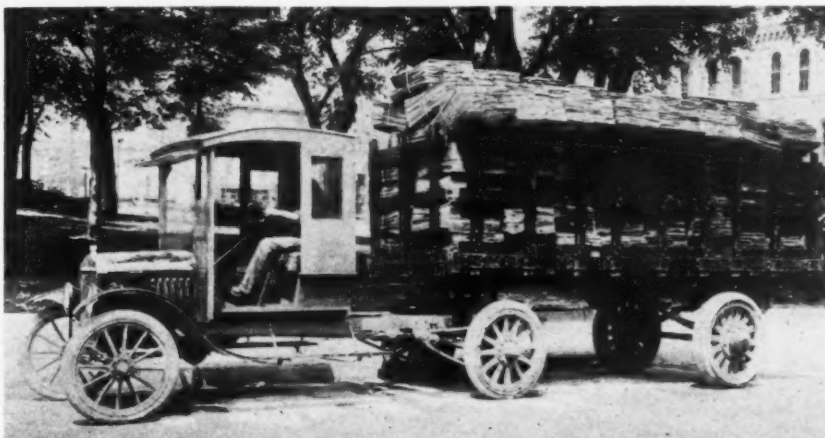
When the average prospective

purchaser walks into the office of a lumberman of the old school, asks the price of maple flooring and is told \$40 or \$60 he knows as much as he did before. He goes away with a feeling that his hardwood floor is going to cost a lot of money and perhaps he had better not get it. He doesn't know that the price given him was for a thousand feet.

On the other hand the lumber dealer of the new school sells flooring by the hundred feet or better still by the floor. Thus the average kitchen is ten by twelve and would require 160 feet. This at \$40 a thousand would be \$6.40, leaving thirty-six cents for nails.




GET out those blue prints and figure that lumber bill again. Now is the time to build.



A "Henry," a "Smith," and a "King" at work for the C. A. Sauer Lumber Co., Ann Arbor, Mich. Thirty-six thousand shingles is a pretty fair load, but is easily handled with the fifth wheel trailer, which has a loading space of 5½ by 14 feet.

MORE WINTER WORK



Practical suggestions
for
keeping the 
coming in during
the Winter Months

"I Run My Shop Summer and Winter at a Profit"

DESCRIPTION OF A WELL-ARRANGED AND CAREFULLY EQUIPPED WOODWORKING SHOP WITH COMMENTS OF THE OWNER AS TO ITS MACHINE EQUIPMENT AND GENERAL ARRANGEMENT AND CONSTRUCTION

By J. E. Donaho, Contractor and Builder

ALTHO I live in a little town of about 900, my woodworking shop is sufficiently large for a town of 5,000. Its equipment is very complete, enabling me to undertake almost any kind of work that comes my way, and because it is so equipped, I find that I am kept busy without any special effort. Because I have taken a good deal of pride in my shop and have spent a great deal of time in fitting it out, it might be helpful to some brother readers if I should give a brief description of the building and different machines for the benefit of those who have never attempted to fit out a shop.

My shop proper is 20 by 40 feet, at one end of which I have a store room 14 by 20 feet. In the store room I keep my jack-screws, shovels, bars, ropes and other equipment, and also finished window frames, door frames, screens and other work. I have a 7 by 7-foot sliding door in one side of the store room to provide plenty of room for the larger frames. The shop proper is arranged with the machines requiring power, at the rear, and the remainder of the space at

the front can be cleared, if necessary, for large work. The two sliding doors at the front are lighted.

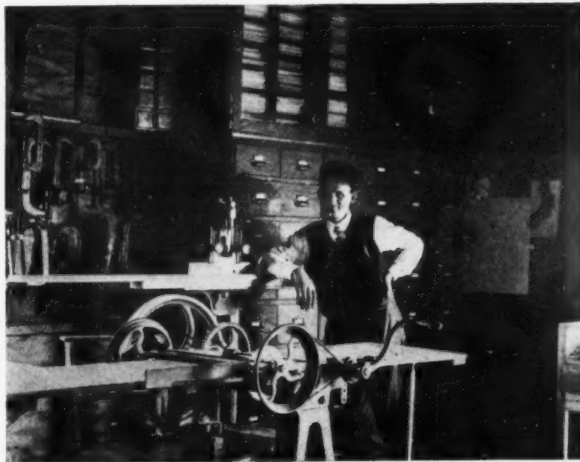
On the plan drawing I have numbered some of the important parts of my shop and the machines in it, so that it will be easier to explain the arrangement. In the rear end of the shop I have two line shafts, Nos. 28 and 29, one overhead and the other beneath the floor. The short shaft, No. 30, is an overhead shaft driven from No. 28. The underfloor shaft, No. 29, is mounted on heavy concrete piers so that it does not touch the shop at any point. I have also mounted my 4-horsepower gasoline engine, No. 12, on a heavy concrete base which does not touch the floor of the shop. This shaft and engine mounting eliminates vibration.

Machines No. 1 and 2 are placed directly above shaft No. 29 and belted thereto. Both machines are equipped with belt tighteners. I find this drive very satisfactory for the following reasons: Machines can be very quickly released; there is no danger of belts creeping while saws are being changed; there is no strain on

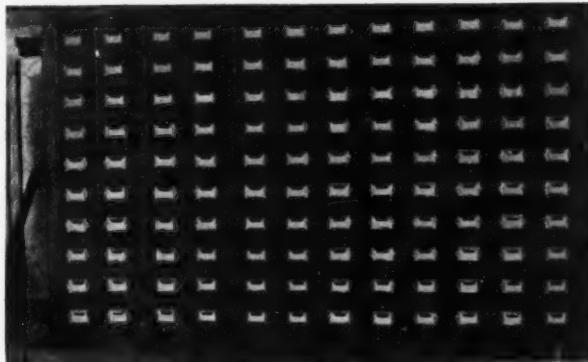


View of J. E. Donaho's Shop, Showing 7 by 7-Foot Door in Store Room. Shop Is Located Along Track Two Blocks From Main Street.

belts while the machines are standing idle, and the tension on belts can be adjusted to the load which is being carried. The under-floor shaft has the advantages that there are no belts to interfere with turning lumber, and counter shafts are eliminated. I have provided an opening at each side of the shop in line with shafts No. 28 and 29, so that by simply loosening the pulleys and releasing shaft collars, the shafts can be withdrawn without disturbing the machines, floors or brackets. I use all wood or steel split pulleys on shaft No. 29, and there is just space enough cut thru the floor for the pulleys and a trap door makes it easy to put on or take off pulleys and belt them to the machines. A manhole is provided for oiling the shaft boxes.

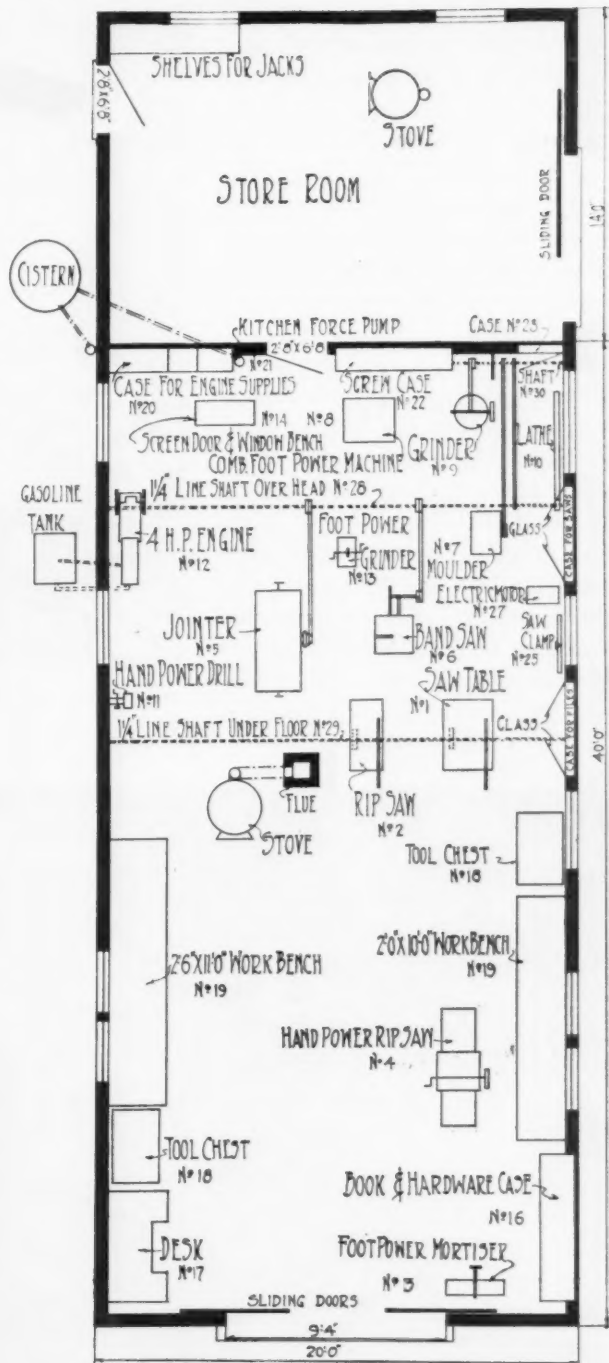


View of One Corner of Shop, Showing Hardware Cabinet, Book Case and Hand Power Machine—Also Bro. Donaho.



View of Screw Cabinet No. 22. Note Construction of Drawers.

The main sills of the building rest on solid concrete piers placed 5 feet on centers, and there is a center sill running the full length of the building, resting on concrete piers placed 7 feet on centers. The shop is framed in bents and it is sided up and down with 12-inch No. 1 W. P. barn siding, battened on the outside. The inside of the walls is covered with AA red rosin sheathing paper with $\frac{1}{8}$ by $1\frac{1}{2}$ -inch strips run around the edges, and bats placed over the cracks. The roof is trussed to prevent spreading. The first 4 feet from the front of the shop is floored overhead to provide a place for shingles, kegs, boxes, scrap lumber and other light stuff.



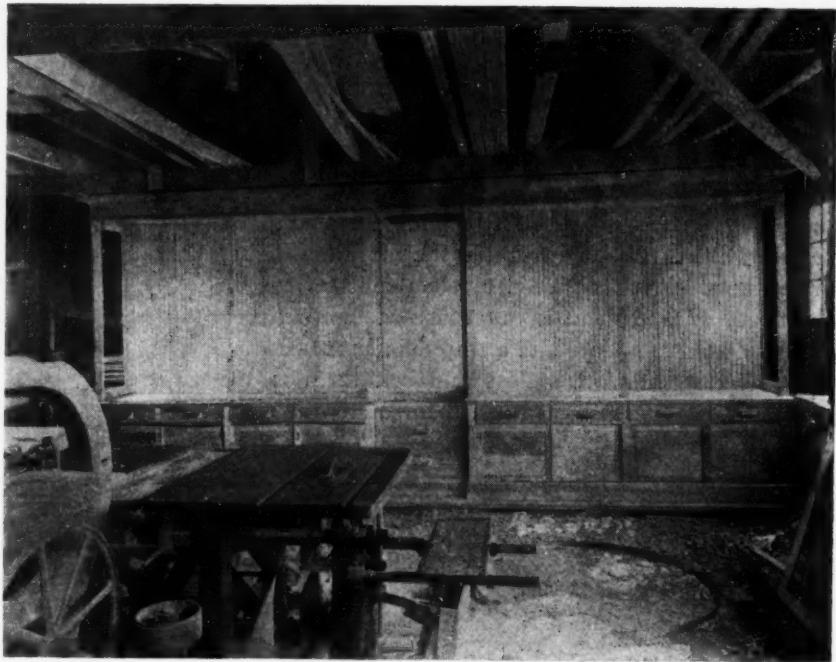
Floor Plan and Machine Design of the Donaho Shop.

The combined machine, No. 1, is one of my own make. The frame is mortised and tenoned together and bolted. The mandrel is 1 inch in diameter and has a spindle thread about 4 inches. The top is built up of $1\frac{1}{4}$ by $1\frac{1}{2}$ -inch walnut and maple strips, glued and bolted. The table can be raised and lowered and also tilted for sawing bevels. There is a groove in the center of the table for a cutoff guide. With this cutoff guide and a ripping guide used as a stop I cut the tenon shoulders for window and door screens by using a very small, fine-toothed cutoff saw with the table set so the saw will reach to the edge of the mortise. I have a special cutter head for screen mould beading,

making a cloverleaf pattern, which I use on machine No. 1. Machine No. 2 is used only as a rip saw and it is so placed that any length stuff can be ripped. With the beader on machine No. 1 and a fine-toothed rip saw on machine No. 2, it is an easy matter for two men to make from 2,500 to 3,000 feet of screen mould an hour, in 6 and 8-foot lengths.

Machine No. 3 is a foot-power mortiser which I expect to replace with a ball bearing hollow chisel mortiser. Machine No. 4 is a hand-power rip saw which is as handy a machine as I have in the shop. This machine and the mortiser can be moved if I need the room. My No. 5 machine is an 8-inch jointer placed so that any length stuff can be worked by passing thru the door into the store room. No. 6 is a

(Continued to page 114.)



Another view of shop of A. J. Justi, showing more of the store fixture and cabinet work he has been doing.



Shop of A. J. Justi, Kingsley, Iowa. Equipped with a Combination Woodworker Consisting of 12-Inch Jointer, 32-Inch Band Saw, Saw Table, Shaper and Borer. Various other attachments can be added to a Universal Woodworker of this type, adapting it for mortising, tenoning, grinding tools, disc sanding, panel raising, etc. A set of store counters and bins just completed by Mr. Justi are shown in the background.

How to Equip and Arrange a Power Shop for the Average Builder

By E. C. Schwertman

WE present herewith two diagrams showing woodworking shop layouts suitable for the jobbing carpenter or builder.

One of these shops is a complete planing mill, finish and cabinet equipment arranged so that it can be driven by one steam engine or a gasoline engine located outside of the building itself, or by one or two motors located right in the building.

If in a shop of this kind the work could be so arranged that all the machines would not be operating at one time, a total of about 15 to 20 H. P. would be ample; and if the grouped motor drive were used, the group containing the planer and matcher, saw table, and jointer, should have a 10 H. P. motor, and the other group a 7½ H. P. motor.

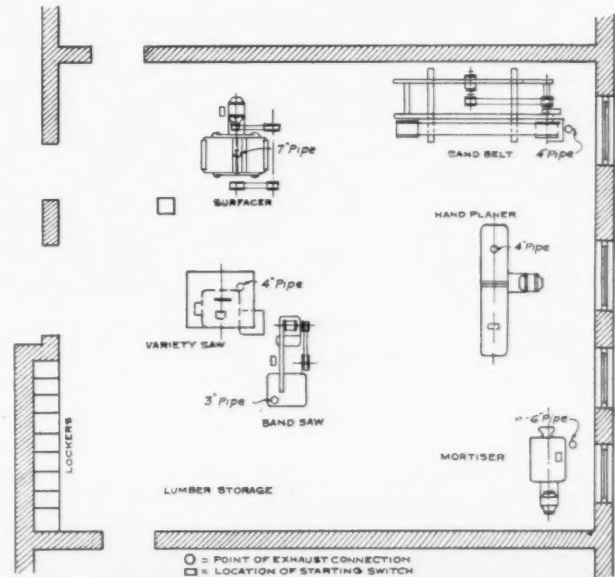
The other layout shows an arrangement for an individually motor driven shop for cabinet and furniture making.

This is laid out to suit an average type of room used for this work, but if the machines are individually motor driven, they can be shifted around to suit different shapes of rooms.

The planing mill outfit would represent an investment of \$3,000.00 to \$3,500.00, while the cabinet shop with the individual motor drive would run \$1,500.00 to \$2,250.00, depending upon the electrical current available and just how much the purchaser wishes to invest.

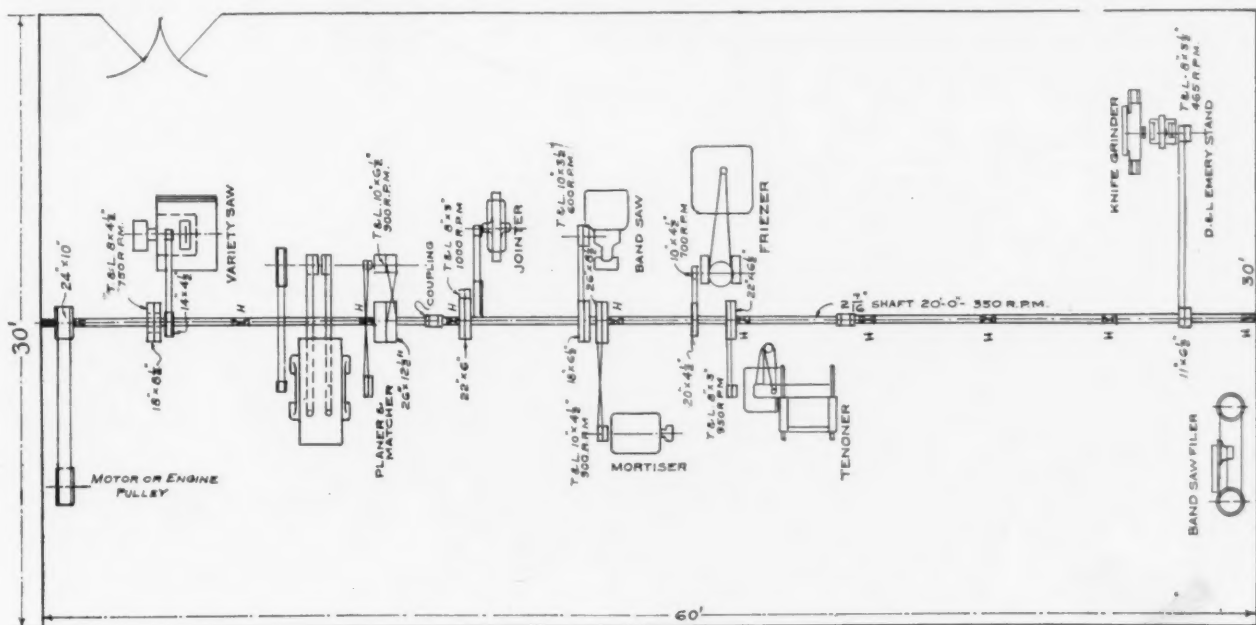
It is our knowledge that if the carpenter or builder is justified at all in putting in a power driven equip-

ment, he is justified in spending the amounts named above for the two different classes of work. In other words, there is no use going into a proposition of this kind simply as a "time-killer."



Suggested Layout for a 6-Machine Individual Motor Drive Shop Planned for a Manual Training School.

If the carpenter goes into it at all, he should go into it with the idea of keeping his shop or mill busy on regular working schedule thruout the bad weather part of the year, and also aim to keep it going steadily thruout the building season, doing everything that can



Layout for 8-Machine Woodworking Shop, All Machines to be Driven from a Main Line Shaft. Shop is 30 by 60 feet, and machines are arranged in logical order for work to be passed along from one to another, without rehandling.

possibly be worked on the machines in the shop or mill rather than by hand, out on the job.

The carpenter who goes at this proposition in this way, will make a success of it and will make a handsome profit on his original investment.

Furthermore, by putting in standard machine individually motor driven, he is in position to put on extra help and speed up operations, as his business grows, and also to expand his equipment by adding such standard units as are required, until he has a complete planing mill, cabinet shop or furniture factory, depending along just what line his business develops.



List of Machines Suggested

MACHINE equipment for a builder's shop depends entirely upon the class of work done. The small shop will start in with a variety saw, small planer, shaper, boring machine and tool grinder. The shopman will afterwards purchase a band saw, small jointer, then sticker and cutoff saw.

As his business grows he will require a lathe and tenoner, also probably want a self-feed rip saw. Then a cabinet planer, and his work may require a wide buzz planer and sander.

If he is progressive he will gradually branch out, as

a business must grow or go backward. The line of work he follows will have much to determine his class of machines.

The investment required to start with will cost around \$1,000 for machinery. The amount of room would depend entirely on his work, but it seems that a space of 30 by 50 ought to handle quite a lot of work.



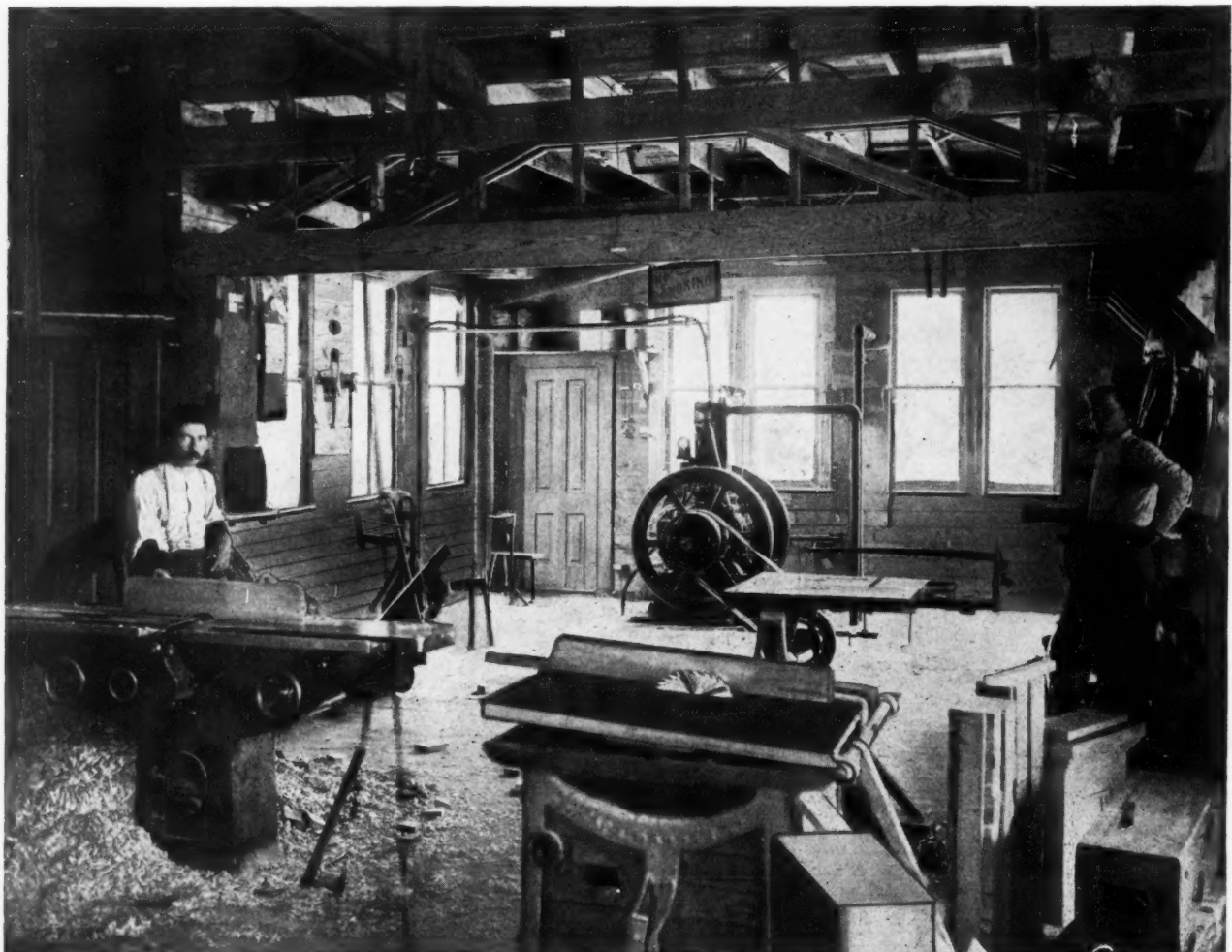
Two Typical Power Shops

By B. A. Getz

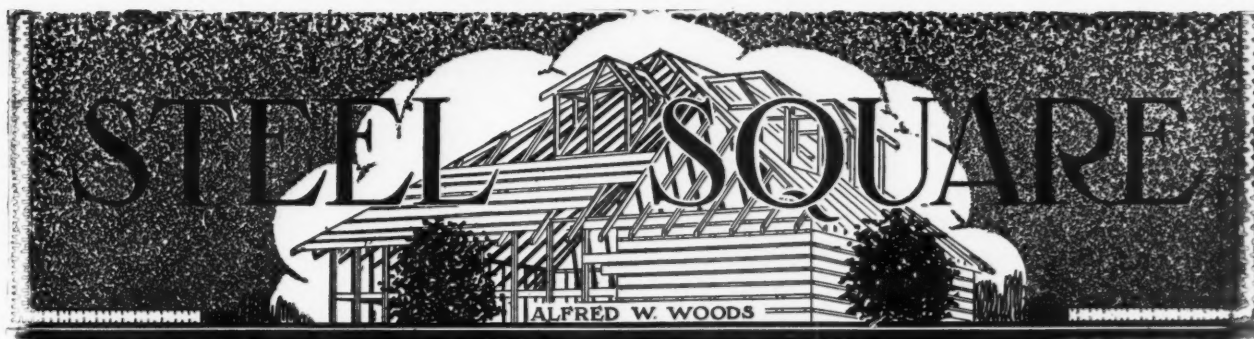
I HAVE in mind two building contractors, friends of mine, who have put in sensible power wood-working equipment in two different amounts that are fairly typical.

The first not having a great amount of capital, built for himself a shop of concrete blocks 40 by 95 feet, in which he installed a combination woodworker, an 18 by 18-inch single surfacer, and a traveling rip saw, all of which is driven with the 10-horsepower motor. His total expenditure for the machinery, including the motor, was not more than \$1,000. This gentleman is a general contractor in Sidney, O., is taking care of all classes of work from the small cottage to the large store building.

(Continued to page 130.)



Neat and Businesslike Power Shop of Contractor Omen, of Alva, Ill.



Possibilities of the Steel Square

A SIMPLE METHOD FOR DEVELOPING THE RAFTERS FOR A VAULTED CEILING, ALSO SHOWING HOW TO APPLY THE STEEL SQUARE TO OBTAIN THE CUTS

By A. W. Woods

WE have before us a letter from a subscriber asking how the cuts may be obtained, with the aid of the steel square, for the rafters for a vaulted ceiling, for a room 10 by 20 feet in the clear, and of which the party submits a plan and elevation, which we have redrawn for illustration purposes, and from it will be seen that the curve for the sides and ends must be irregular or, in other words, of different pitch.

This requires the development of the curve for three sets of rafters, that is, for the hip, for the side and end common rafters. This alone furnishes a problem for the proper laying out of same so that they will coincide when set up in place, but as we were not asked to illustrate the development of the rafters we will not enter on that phase of the question further than to show by a simple illustration how this may be developed from a right-angle triangle with sides equal to the respective runs of the rafters as shown in Fig. 1. The lines at right angles from the sides of the triangle are of the same length for the respective sides and we trust this is made clear without further explanation.

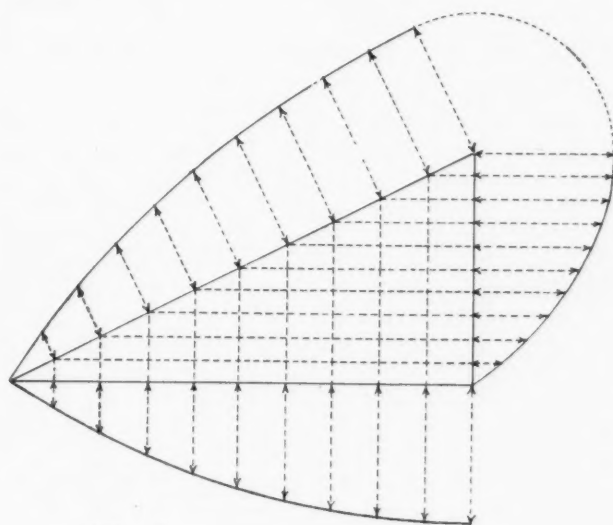


FIG. 1.

How to Get Contour of Hip Rafters for Vaulted Ceiling.

We will now confine our remarks to the question asked—how to obtain the cuts with the aid of the steel square for curved rafters. Fig. 2 shows the length of the common and jack rafters for the respective sides of the room; this, too, we trust is clear enough without further illustration.

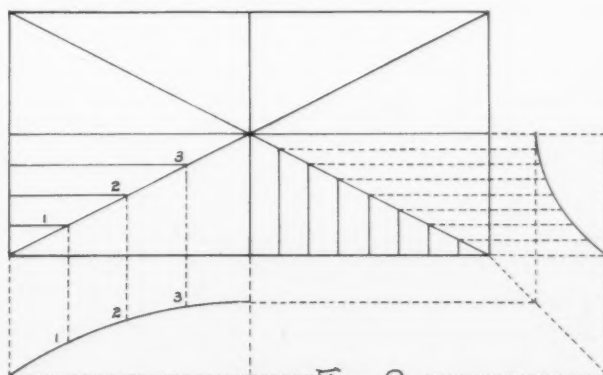


FIG. 2.

Common and Jack Rafters for Vaulted Ceiling.

We come now to the real question, how to apply the square to obtain the cuts, and since the square must be applied to a straight line as in the case of the straight rafter, its back is made to represent this line. So in the absence of a straight line in the case of the curved rafter one must be produced as shown in Fig. 3, which, will be seen, is the same as the pitch for the common straight rafter, and to this line apply the square for the seat and plumb cuts, as in the case of the straight rafter, but there is no way of directly

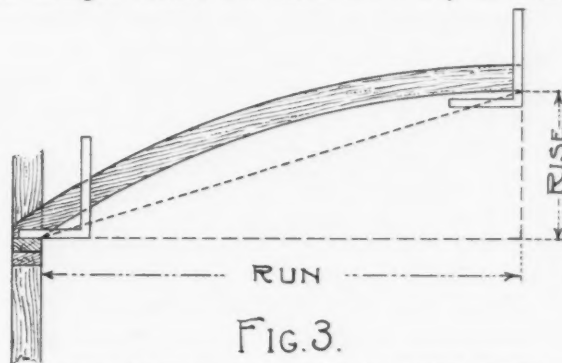
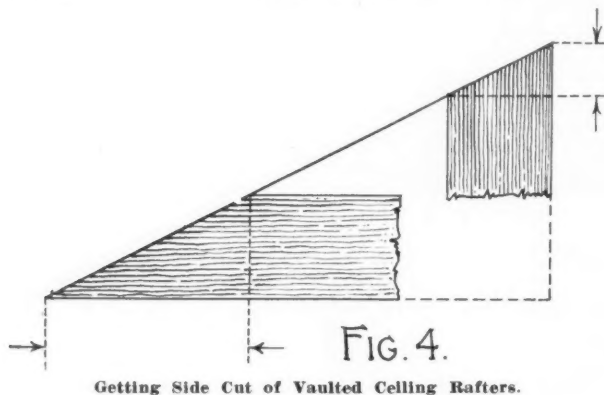


FIG. 3.

Applying Square to Curved Rafter for Vaulted Ceiling.

applying the square for obtaining the side cut of the rafters, but the same may be obtained by first laying off two sets of plumb lines the horizontal distance apart, as shown by the arrowheads in Fig. 4. The triangle in this is to the proportion as shown in Fig.



1, and in the angles lay off the full thickness of the jack rafter and by squaring out as shown by the dotted lines will represent how far apart the plumb lines should be for each set of rafters. After laying off the plumb lines, which, by the way, for accuracy, should be on both sides of the rafter, and by cutting diagonally across from one side to the other will give the proper cut to fit against the hip. This also applies to the side cuts for the hip, and that, too, regardless the rise given the ceiling.



A Bedroom Wardrobe

Designed by Ralph W. Ermeling, Architect

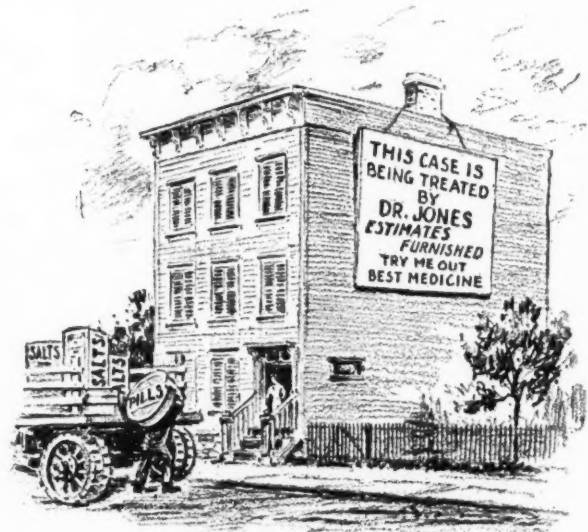
THIS is the day of built-in furniture. People who live in apartments or private houses in our cities and towns want conveniences furnished in the building ready for them to move in. There is less furniture to handle and move about, and then, too, when you have things built in you can have them planned and arranged to suit your own personal preferences. This is also the day of wardrobe closets. Not every one is familiar with them as yet, but the principle is right and progressive people demand them. The progressive builder will find a strong talking point when they are installed in houses and apartment buildings. They help to sell and rent property.

It is not always convenient to build a wardrobe closet between inner walls, but there are so many houses with dormers and unoccupied spaces under the sloping roof that are too low for closets or trunk storage that it seems a pity to let such useful voids be wasted. The accompanying plate illustrates how this may be utilized to good advantage. With the exception of hooks for hanging, it takes the place of a wardrobe closet. Capacious drawers are provided on each side of the window for long wearing apparel, and two smaller drawers are furnished above them also. At the side of these smaller drawers there are compartments with small hinged doors, for hats. These measure 18 inches high, 20 inches wide and 2

feet deep. At the bottom, in place of what appears to be the lowest drawer, the front is hinged at the bottom with spring hinges. This arrangement forms a very convenient receptacle for shoes.

The height and size of the wardrobe cabinets may be varied to suit the requirements of the owner, and to fit into the room. The ones shown here are for a room 15 feet in length. Into the space between the cabinets a slotted seat over the radiator fits quite

(Continued to page 118.)



Dear Doctor

(According to "The Dutch Boy Painter" this correspondence would be expected if people acted towards physicians as they do toward painters.)

DR. JONES.

Dear Sir: Please come to look over my boy. I contemplate having him treated. I don't know what is the matter with him. He is completely covered with ugly blotches. Let me have your lowest figure to cure the poor little fellow.

J. J. PARENT.

(Duplicate of the preceding letter sent at the same time to Dr. Blake.)

MR. J. J. PARENT.

Dear Sir: After going over your boy, I take pleasure in submitting the following bid:

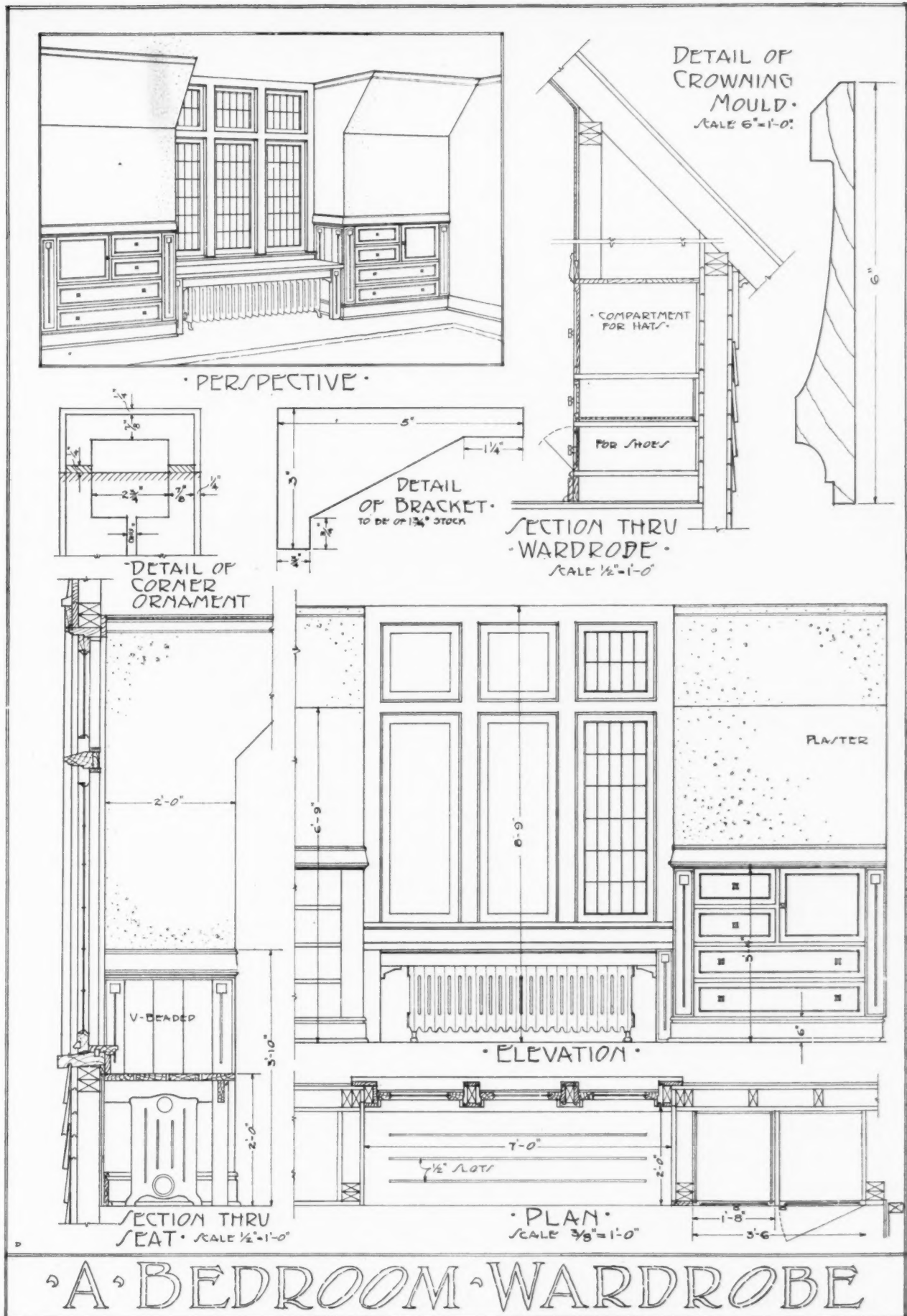
I will cure your son for the sum of \$210.50, which figure covers eighteen boxes of blue pills, seven gallons of castor oil, and one-half ton of Epsom salts. While this price may seem high, I would ask you to remember that nothing but the purest medicine will be employed and that my personal attention will be given to the work. You will find the figure to be most economical in the long run. DR. BLAKE.

MR. J. J. PARENT.

Dear Sir: I have thoroly inspected your boy, and will be pleased to receive the job of curing him, which I will do for the sum of \$125.10. I will employ first-class medicine at all times and will give my personal attention to every phase of the job. DR. JONES.

DR. JONES.

Dear Sir: I have received your bid of \$125.10 and hereby award you the contract. The boy has been getting violent while waiting for the bids to come in, and I would advise immediate treatment. J. J. PARENT.



Perspective, Plan and Sectional Details of a Pair of Built-In Wardrobes Flanking a Casement Window Group in a Bedroom. Ralph W. Ermeling, Architect



Noon Hour Talks by the Boss Carpenter

Talk No. 63—Farm Series No. 4—Poultry Houses

THE BOSS TELLS ABOUT THE DESIGN OF A PROPERLY CONSTRUCTED POULTRY HOUSE AND HOW TO BUILD IT

"YOU fellows may think," said the Boss, "that anyone can build a 'hen house,' but how many of you really know how to build one that meets the requirements of a properly designed building?"

"The old-fashioned closed type of poultry house may still be found, but not on the property of a progressive farmer who keeps in touch with recent developments

poultry house the drainage of the ground and ventilation of the building should be watched very carefully. The ground on which the building is located should have a gentle slope to the south or southeast. If the soil is not dry, it should be made so either by artificial draining or by filling in with a material that will prevent water from collecting around the building. A light loam is well adapted for this location, while a slight sandy soil thru which the water passes freely will stand more intensive poultry conditions. A heavy clay or adobe soil is not suitable for a site, as such land does not drain easily.

"Fowls are very susceptible to the bad effects of poor ventilation and every poultry house should have some means of providing a plentiful supply of fresh air in the interior. The air should enter in such a way as to avoid drafts, and the open or curtained front referred to above is the common method used. An additional supply of air may be provided by making openings in the gable ends of the building and allowing the air to pass thru a layer of straw inserted near the ceiling to break the draft.

"Sunlight is also needed to keep the interior in a

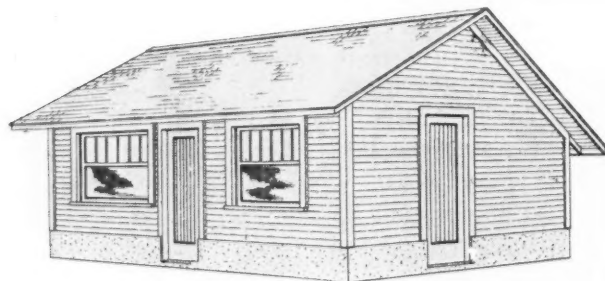


Fig. 4A. A Modern Open-Front Poultry House.

in the poultry business. The open front type of house is the kind of building now recommended and may be found all over the country. This building is closed on all sides except the south or southeast, which should be the front. This side is either partly or completely open to the outside air to provide light and ventilation without drafts. These openings may be covered with cloth to break the force of the wind if desired, or a combination of cloth and glass may be used to protect the interior in bad weather at all seasons of the year.

The building in Fig. 4A shows the modern type of structure and illustrates its exterior design.

"In locating a

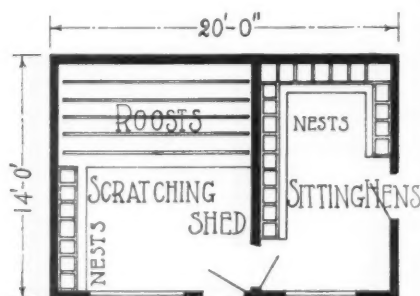


Fig. 4C. Plan of Modern Poultry House.

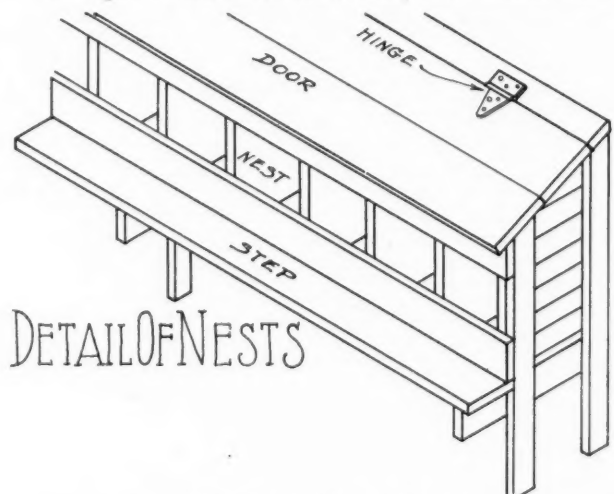


Fig. 4D. Detail of Nest.

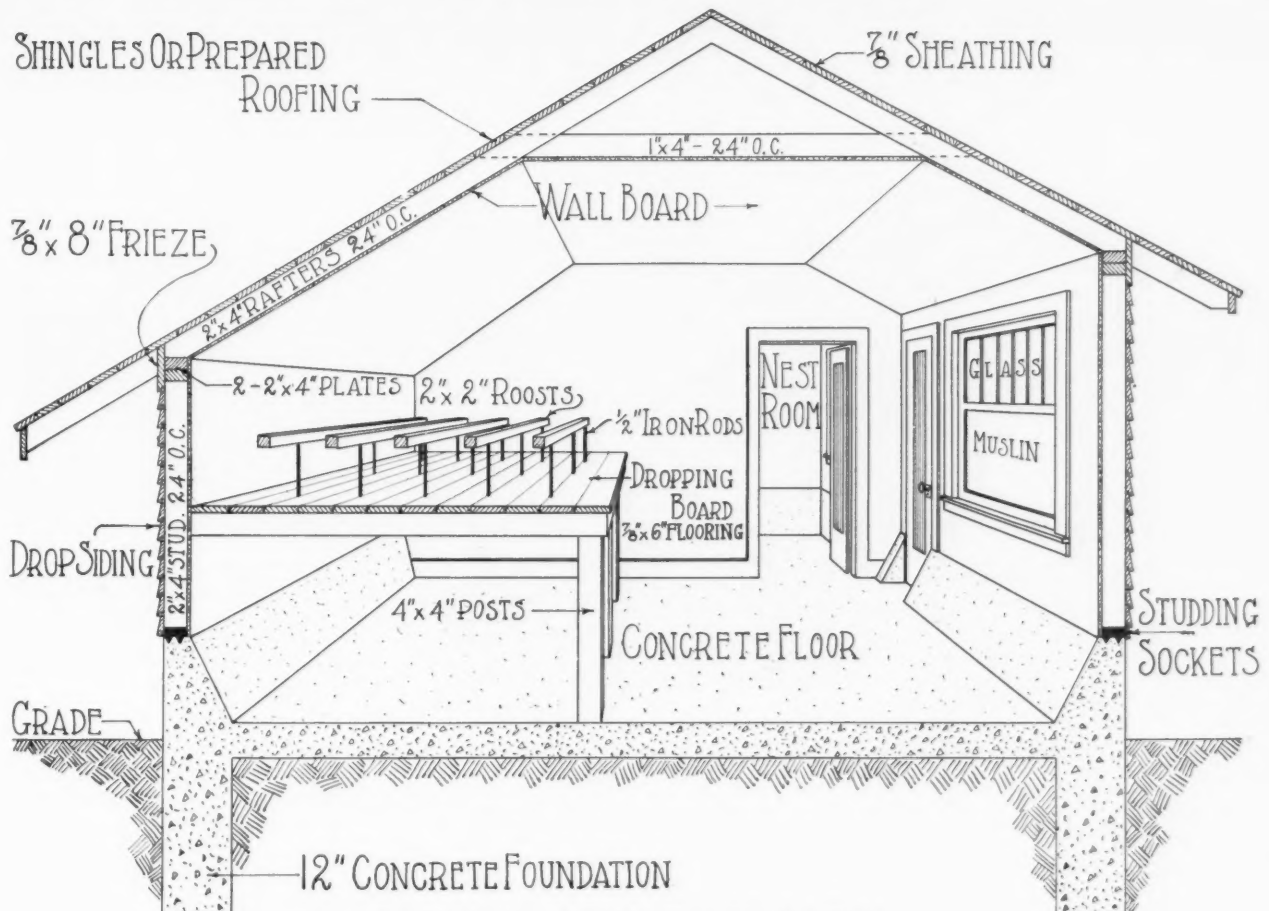


Fig. 4B. Section and Interior View of Poultry House.

healthy condition. The cloth frames admit a certain amount of light, but it is advisable to use a few glazed openings, as shown in Fig. 4A, so that the direct sunlight may enter. A large amount of glass makes the house warm during the day and cold at night, since the glass radiates heat very rapidly. The location of the glazed openings should be high enough to allow the sunlight to penetrate well into the interior during the winter.

"The size of the house will depend upon the number of fowls which are to be kept in it. From 2 to 5 square feet of floor space should be allowed for each bird. Since the matter of ventilation is provided for by the openings, the floor area is the important point. Authorities tell us that this item of floor space depends upon the kind of poultry kept and upon the system used. The small breeds, such as Leghorns, require less floor area than the larger ones, such as Brahmas. The colony system of housing requires less floor space where the birds have free range than when they are allowed small fenced-in areas, as in the intensive system.

"The foundation may be of concrete, as shown in Fig. 4B, either in the form of walls where a concrete floor is to be used, or as posts set at the corners of the building and at intervals along the sides if the dimensions of the building warrant it. Wood posts may be used instead of concrete in buildings of mod-

erate size. If wood is used, it is advisable to paint the posts with at least two coats of creosote oil or dip them in a tank filled with the oil before putting them into the ground.

"The floor may be of concrete, as in Fig. 4B, of wood, or even of dirt. The kind best suited in a given instance depends upon the soil on which the building is located and the use of the house. Concrete floors are adapted to all permanent buildings where an artificial floor is required and can be built direct on the ground. The level of the top surface of such a floor should be from 4 to 6 inches above the ground level to insure a dry floor. The floor slab may be about 4 inches thick and covered with a finishing coat of concrete about 1 inch thick. It is advisable

(Continued to page 104.)

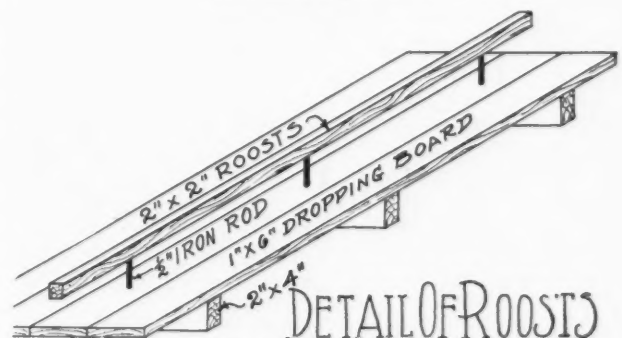
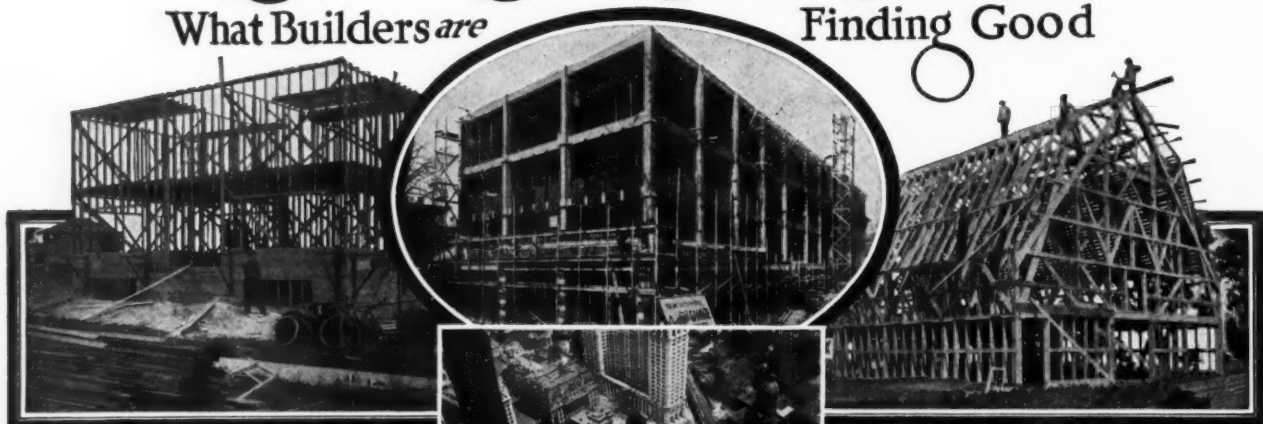


Fig. 4E. Detail of Roost.

OUT ON THE JOB

What Builders *are* Finding Good



EDITOR'S NOTE: The American Builder does not accept payment in any form for what appears in our reading pages. In order to avoid any appearance of doing so, we omit the name of the maker or

seller of any article we describe. This information is, however, kept on file and will be mailed to anyone interested; address American Builder Information Exchange, 1827 Prairie Ave., Chicago.

Multiple Installation Chemical Closets for Industrial Plants

The expense of installing a complete water sewer system is very often too great a burden for the small industrial plant, located in an undeveloped district. Every firm recognizes the necessity of providing sanitary toilets for the use of its workmen, so that the chemical closet with permanently installed reduction tank, serves an urgent need in supplying the means of providing such toilets. The chemical toilets are just as satisfactory to the men as water toilets would be. The cost of their operation is very low and the work required for their maintenance is easy and far from disagreeable.

The illustration shows a multiple installation consisting of three bowls and four urinals. The reduction tank is shown mounted on the basement floor. The illustration does not indicate how the tank is drained when it has become filled. There are several methods in use for draining the tanks. With the permanent installation, it is customary to install a

pipe line from the tank to the drainage system, a valve being installed at the tank which, when opened allows the sewage, which has become liquid by the action of the chemical and the agitator in the tank, to run out of the tank and be disposed of. The actual disposition is accomplished by discharge into a creek or river, by dissipation in the soil surrounding an open-jointed tile drainage bed or by dissipation in a cesspool. Perhaps there might be conditions which would prevent the use of any of these methods of disposal. It is then possible to empty the tank by means of a pump, the sewage being placed in a container and hauled to a suitable place of disposal.

The installation of these plants is simple and any builder is fitted, with a little study, to handle the entire installation. The knowledge of their use and installation should be acquired to enable the contractor handling work in districts not having sewer connections to handle a complete job and obtain profits for the entire contract.

Waterproofing an Integral Part of the Concrete Mixture

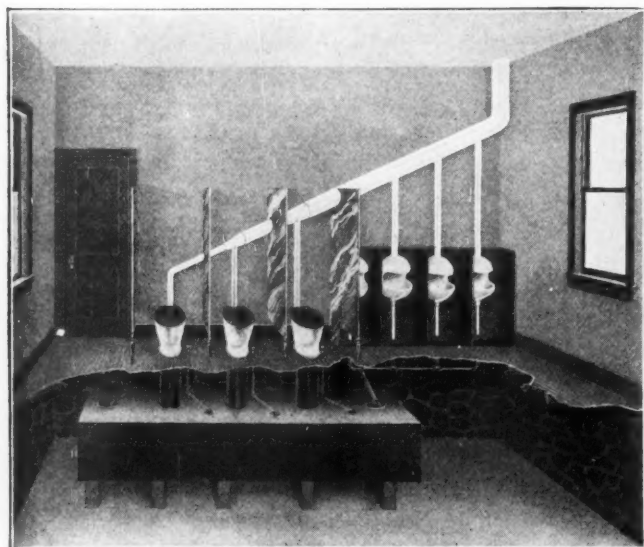
The first successful waterproofing medium for integral use was brought out some ten years ago. It was a true invention, not an accidental discovery, and the courts have repeatedly upheld the claim of the inventor, Mr. S. B. Newberry, to originality in this field.

As everybody knows, concrete or stucco is porous. It absorbs moisture from the atmosphere and where water is present in large quantities, as is often the case underground, it acts like a lampwick.

It is practically impossible to make concrete dense enough to prevent the absorption of moisture. Mr. Newberry attacked the problem in a new way. He discovered a substance which when incorporated with cement would form a permanent compound that repels water. He found that only one and a half or two per cent of this compound is needed to completely destroy the wick-like action of concrete.

The integral method of waterproofing is being used for subways, foundations, etc., below the level of rivers and lakes and with water in contact with the entire wall.

The use of the integral method involves no difficulty. Concrete is mixed and poured exactly as if it were unwaterproofed.



Multiple Installation Chemical Closet with Reduction Tank Mounted on Basement Floor.

Another field which is being completely taken over by the integral method is that of stucco. The greatly increased use of stucco as an exterior finish is mainly due to the use of waterproofing. Waterproofing mixed with the stucco keeps it from drying out too rapidly, and thus prevents hair-cracking. The waterproofed stucco is non-staining and holds its original beauty and color.

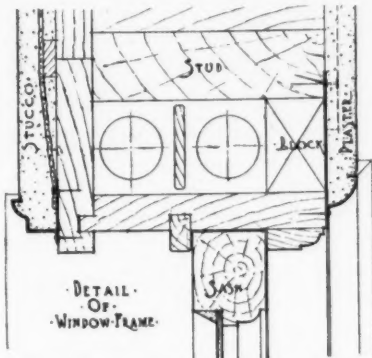


Metal Trim for Doors and Windows

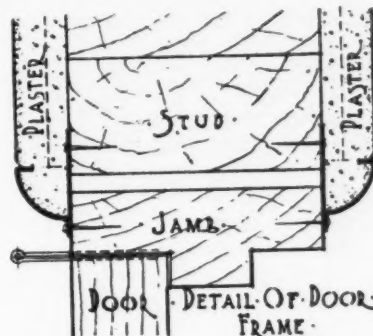
A metal trim is being made in five sizes and shapes which may be used for trimming windows and doors, transoms, baseboards and skylights in all classes of construction, and it may also be used on the exterior in all except frame exteriors. The trim is made in lengths of 6, 7, 8, 9 and 10 feet, ready to be fitted. The material is 26-gauge galvanized sheet steel, drawn thru straight and accurate dies. It will

its strongest recommendation to the building owner, but he also benefits by the sanitary installation which it provides and by the absence of draughts around casings where the trim is used. The trim is satisfactory from the standpoint of the workman because he is assured of a neat job without the use of special tools.

After the frames are permanently set into the wall openings prepared for them, the trim is securely nailed to both the



The Heavy Lines at the Edge of Plaster and Stucco Indicate Section of Metal Trim on Window.



The Metal Trim is Shown in Section on Either Side of the Wall at an Interior Door. Notice the Manner in which it is Locked Into Plaster.



The Appearance of Interior Doors Finished with the Metal Trim is Pleasing and there are no Corners to Catch Dirt or Harbor Vermin.

mitre and cope, making perfect joints. Any carpenter or mechanic, with the aid of a mitre box and nail saw, can quickly fit the trim into place. A hammer and nails are all that is required for installation.

The illustrations show details and appearance of the trim when used on doors and windows. The neat appearance is

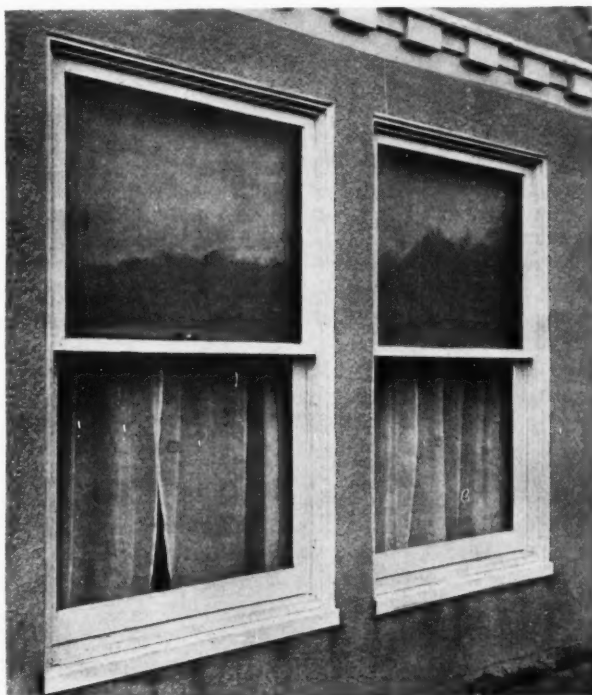
frame and the wall or studding. The plaster or stucco is then applied, securing, thru the medium of a patented locking formation, an absolutely air-tight joint thru which it is impossible for draught or germ to find its way. This feature is the basis of the quality of sanitation which is one of the most important characteristics of work finished with the metal trim.



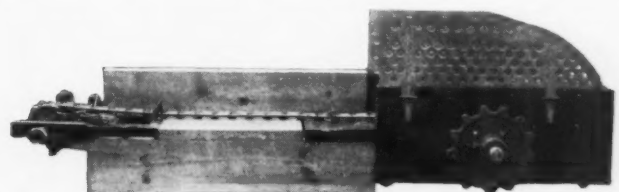
Feeder for Corn Sheller

A feeder for the corn sheller, consisting of a trough in the crib, a conveyor in the trough and an attachment to the portable sheller is being used with success to eliminate the hard work of shoveling corn. The feeder, assembled as it is in the crib trough, is shown in the accompanying illustration. The conveyor is clearly shown in this view.

The feeder may be installed in the crib either at the time of building or afterwards. When it is placed in a new crib, the trough is formed in the concrete floor of the building. If the building has already been erected the trough is constructed on the existing floor. In either case, the trough is built in two parts, each 4 inches deep and 8 inches wide, one above the other. The chain conveyor carries the corn along the upper part of the trough and the lower part of the trough serves as a return for the



View Showing Clearly the Neat Appearance of the Metal Trim on Windows in a Wall Finished with Stucco.



Corn Feeder Set Up with Side Board Removed to Show Conveyor. Corn is Carried to the Right in the Upper Part of Trough to Sheller Conveyor.

conveyor. The center board, dividing the trough, and the cover boards are of wood. The cover boards are nailed loosely over the top of the upper part of the trough so that they can be easily removed to let the corn into the trough commencing at the end next to the machine. The ends of the trough are left open for ventilation. When the trough is set into the floor the conveyor will remove all of the corn except a small quantity on either side of the trough, which may easily be scraped into the trough. When the trough is built upon the floor it is necessary to shovel a small quantity thru the trough.



Save Fuel by Better Heating Plant

The high cost of fuel, which is certain to continue long after the coming winter, brings up the question of more economical heating plants.

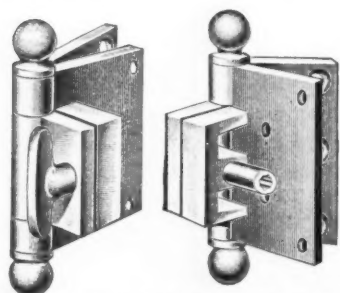
All the way up from the old-fashioned fireplace—stoves, furnaces, to water and steam radiation—there is marked improvement and even greater economy of fuel. In practice the cheaper the fuel the less economical is the heating apparatus.

With coal selling at present prices and threatening to go still higher it will be found good business to spend a little more money for a hot water heating boiler which has the economical construction of the modern power boiler. A locomotive type of sheet steel boiler is made and sold "in forty-four states" thru the building contract trade. It has an excellent reputation for fuel economy and burns soft coal (even of the lower grades) as well as anthracite.



Friction Hinges for Casement Windows

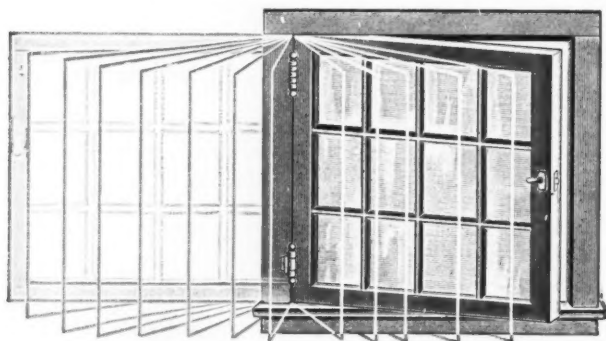
A hinge which is so constructed that it takes the place of the regular butt and the usual casement adjuster, is shown in the accompanying illustrations. It can be applied to casement sash opening either in or out. The hinge shown on the left in the group of illustrations is used when the sash opens in. The friction is adjusted by means of the handle shown. When the sash opens out, the hinge shown on the right of the group is used. The friction handle is placed on the inside casing and is connected to the hinge by means of a steel rod.



Hinge on Left is for Inside Casements, and that on Right, with Friction Handle, is for Outside Casements.

Friction, in varying degrees as required, is applied by the friction handle. In use it is not necessary to release the friction in order to open or close the sash. The friction is set for ordinary conditions of wind and the sash can be opened or closed against the friction, without

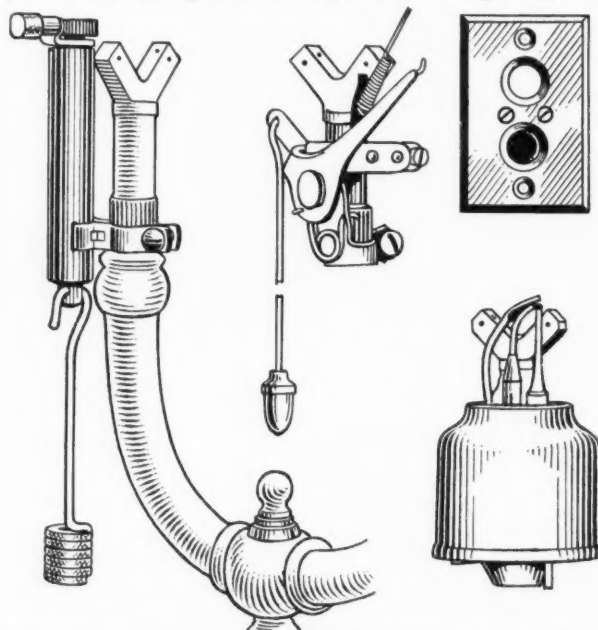
special effort, yet the sash will be firmly held at any angle.



Showing Range of Opening of Casement Window Fitted with Friction Hinges.

Matches Eliminated for Acetylene Lights

The state of perfection to which acetylene lighting plants have been developed today is indicated by the fact that those interested in the manufacture of these plants are now centering their attention largely upon methods of increasing the convenience and adaptability of the system of lighting rather than the means of producing the gas. Their plants have passed thru the experimental stage and the designs have been



A Group of Typical Equipment which is Used on Acetylene Burners to Eliminate the Use of Matches.

developed to the point of standardization—efficiency, economy and safety have been attained. Now comes the development of fixtures and equipment to give the user of acetylene gas every convenience in its use that capable inventors can bring forth. There has been a great deal already accomplished in this direction, as is indicated by the different methods which are now being successfully used to ignite the acetylene burners without the use of matches.

The accompanying illustration presents three of these methods. The lighter on the left operates by the action of a hard, milled wheel on a piece of sparking metal held against the wheel by a small coiled spring. The gas is turned on in the regular way and the wheel of the lighter is turned by means of the suspended hook. This throws a shower of minute sparks hot enough to ignite the gas, but not hot enough to burn the hand or even the most delicate material. Lighters of this type are also being made which turn on the gas in the same movement which causes the sparks to ignite it.

The remaining two lighters are of the electric type, requiring three or four dry cells and a small spark coil in connection with the igniter and valve operating mechanism. The upper lighter gives control at the burner by means of a lever. Pulling down on the lever turns on the gas and ignites it. Pushing up on the lever, extinguishes the flame.

The lower electric lighter is used with a push button system which gives control of the burner at any one or more desired points. The convenience of such a system is easily realized. For instance, by simply pushing one of the buttons on a wall key placed handy to the stairs, the acetylene gas light in the second floor hall is lighted. This light is located so that it will illuminate the stairs. When the second floor has been reached and the hall light is no longer needed, pressure on one of the buttons on a wall key placed in the hall will extinguish the flame. Either of the keys will light or extinguish the burner. A white button is used on the keys for the one which lights the burner and a black button for the one which extinguishes the burner.



Easily Installed Trolley Garage Door Track

Among the various equipments included in the complete line of garage door fittings recently brought out by an Iowa firm, the track shown in the accompanying illustrations is an interesting feature in that it combines rigidity of construction with exceptionally easy installation. The track requires no brackets, since the brackets are a part of the track proper, coming riveted on. The track proper is made of 15-gauge tough carbon steel, formed into shape by a powerful 33-ton press. The brackets are of 3/16-inch steel, 1½ inches wide.

The hangers are entirely enclosed and protected and it is impossible for the doors



Showing Method of Protecting Joint in Trolley Garage Door Track. Notice that Brackets are Riveted to Track.



Section of Track with one Type of Hanger in Place.

to jump the track or for the bearings to become rusty or clogged with dirt. Several styles of hangers may be used with this track. The equipment can be adapted for right-angle doors, doors sliding around the corner and for folding or accordion doors. The hangers have wide tread tandem roller bearing wheels and ball bearing swivels, designed for smooth and silent operation.

The method of joining sections of the track, shown in one of the illustrations, is interesting. The left ends of the sections are cut flush and the right ends are embossed. This provides an over-lapping joint which is snug and weather-proof.



Barn Ventilation Necessary in Winter

Contractors and builders who are looking for some special work to increase their income during the winter months should think well over these facts: The unventilated cow stable in winter is a close, stuffy, foul-smelling place. Agricultural experts have proved that cows kept in such barns cannot be as profitable as if their living conditions were as they should be. Because air pollution affects the quality of milk given by the cows, efficient barn ventilation is necessary in the interests of public health.

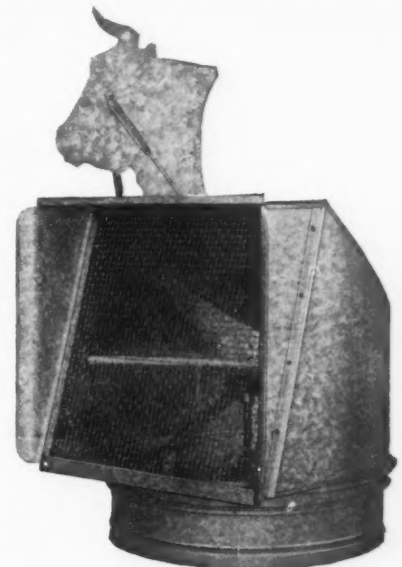
The contractor or builder who installs a ventilating system in a barn which has previously been unventilated shows the farmer the greatest possible good which can be obtained from his investment—immediately upon the completion of the installation, if the work is done during the winter months. The publicity which is given his work by one satisfied farmer will naturally lead to business among this farmer's friends.

Ventilation—especially dairy barn ventilation—does not consist simply in the provision of a vent in the roof. There must

be a carefully designated ventilator at the top of the system properly connected up to a series of ducts leading to the various parts of the building. Any builder is capable of installing the ventilator and pipe system, as far as the actual structural work is concerned, but the man who has not studied carefully into the matter will do well to consult the engineering departments of the ventilator manufacturers before attempting to lay out a system. Air distribution is vitally important and the correct installation in each case requires special study based on experience. This need not interfere with the operations of a beginner in the field, for the manufacturers are in every case equipped to teach them the principles which must be considered.

Those who see fit to consider this winter work suggestion will be interested in the rotary ball-bearing type ventilator shown in the accompanying illustrations.

It consists in a rotary hood mounted on ball bearings, surmounted by a vane which always keeps the open mouth of the hood away from the wind so that a partial vacuum is formed



Head of Rotary Ball Bearing Ventilator Showing Vane which Keeps Mouth Away from Wind. Protective Screen Keeps Out Birds.



Barn of M. E. Battles, South Euclid, Ohio, which is Equipped with Ventilators of Above Type.

in front of the hood opening. In this way the foul air is sucked up from below, letting pure, clean air take its place. The efficiency of this type of ventilator has been amply demonstrated by use, for a number of years, on several of the largest industrial plants.



New Mixer for Small Jobs

The single opening, tilting drum type mixer shown in the accompanying illustration has recently been placed on the market. Its capacity is from 3 to 4 cubic feet per batch, which places it in the class of handy mixers for small jobs or for detail work on large jobs. The machines are equipped with a two-horsepower gasoline engine with reinforced steel

house, mounted on steel trucks, and the design includes the various improvements which have been made from time to time on this type of mixer.

The drum requires only one journal and it revolves on protected steel ball bearings. The base of the drum is a solid semi-steel casting to which is riveted the heavy sheet steel top. The drum is evenly balanced and is easily tilted to



New Mixer of Single Opening, Tilting Drum Type for Light Work.

discharge any amount of concrete. The yoke supporting the drum is of semi-steel, molded in the form of an I-beam section with the metal distributed to give the greatest strength without unnecessary weight. Heavy

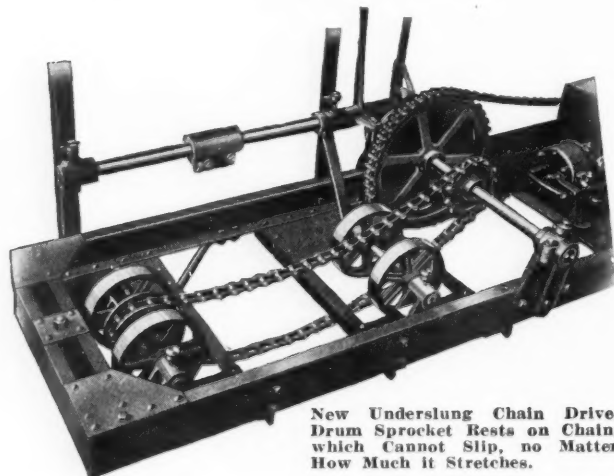
standards support the yoke, the standards being securely bolted to the skids. Lock washers are used on all bolts thruout the machine.

Power transmission is thru a pinion gear meshing with the ring gear which is cast integral with the drum. The ring gear always faces away from the operating side, whether in loading or discharging, which protects it from damage. The gasoline engine is of a type which has been thoroly tested in this sort of service.



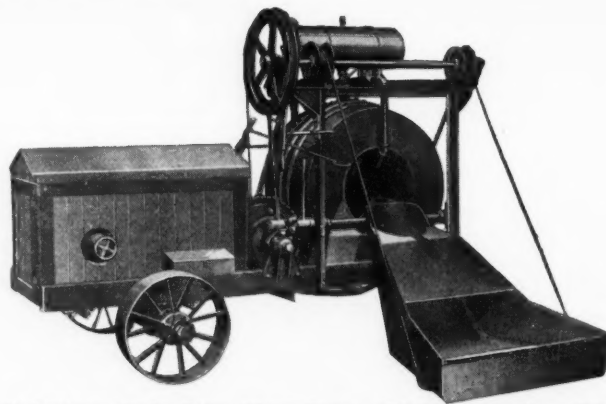
New Underslung Chain Drive Concrete Mixer

A new method of driving the drum of a concrete mixer, which retains the good features of the old chain drive and eliminates its weaknesses, has been devised by one of the largest manufacturers of concrete mixers. This method, which is shown in the accompanying illustrations, may be termed an underslung chain drive. The chain goes under the drum, around an idler pulley on the roller shaft and back under the frame, instead of being placed around the drum, as was the practice in the old style chain drive.



New Underslung Chain Drive. Drum Sprocket Rests on Chain, which Cannot Slip, no Matter How Much It Stretches.

The shortcomings of the old chain drive were practically all traceable to the stretching of the chain. In its new position, the chain can stretch to any degree, but this stretching cannot make it slip or come off the sprockets. The drum of the mixer is a constant and automatic tightener. The



Underslung Chain Drive Mixer Fitted with Rapid-Loading Skip.

upward pull on the chain produces a perfect contact between the chain and the sprocket teeth. This same tendency materially reduces wear on the rollers, roller shafts and boxes. The new drive also minimizes the wear on the chain and the sprocket ring.

In addition to the new drive, the mixer is provided, when desired, with a rapid-loading skip with a wide nose and no corners to hold back the materials. The skip is elevated to a 50-degree angle in eight seconds, the contents being thrown clear into the center of the drum, where it is held by the large V-shaped mixing scoops, preventing slopping. The loader mechanism includes a large cone type, asbestos lined clutch and an automatic skip knock-off. The discharge is equally rapid. A low charging outfit with the underslung drive is also being made.

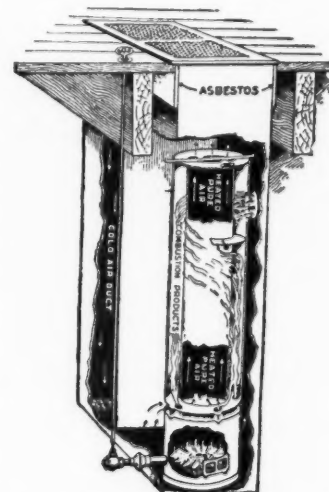


Circulating Floor Furnace

The circulating floor furnace shown in the accompanying illustration is designed for use either as the principal or auxiliary heater in a room, house, store, hall, theater or church. It will operate on either natural or artificial gas, the burner being controlled from a position near the floor register.

The furnace consists of a rectangular drum, divided into two compartments, entirely covered on the outside with asbestos lagging and bolted to a cast iron register at the top which rests in a cast iron register border set on the floor and supporting the entire furnace. One of the compartments contains a powerful gas heater and the other serves as a cold air return duct.

The heater must be connected to a good chimney which, by the arrangement of the furnace, will entirely remove all of the products of combustion. The radiator, or upper part of the heating unit, consists of a cylindrical shell; the heated air passes up thru the center of the shell and also around the outside of this shell, while the combustion products are contained within the shell where they are conducted to the chimney flue. Sufficient air is admitted below the cast iron firepot to provide



Perspective View Showing Details of Circulating Floor Furnace.

for the burner combustion. The burner valve has an extension socket fastened to it and a japanned iron wheel fits over the socket so that the burner may be controlled from the basement. A $\frac{1}{4}$ -inch rod reaches from the valve thru the floor to the key which provides a means of controlling the flame from the room being heated.

Improved Chest Handle

The wrought steel chest handle shown in the accompanying illustration is strongly made with a large, comfortable handle which enables the user to take a good grip without cramping the hand. This construction makes the handle particularly appreciated for heavy tool chests.

The handle is made in $2\frac{1}{2}$, $3\frac{1}{4}$, 4 and 5-inch sizes, and is furnished in five finishes: japanned, light bronze, antique copper, nickel and special sherardized. The $3\frac{1}{4}$ -inch size is especially adapted for use on mechanics' tool boxes and small chests. The $2\frac{1}{2}$ -inch size is for shirt-waist boxes and other light cases. The $2\frac{1}{2}$ and 3-inch sizes have three screw holes in the plate and the 4 and 5-inch sizes have four holes.



Wrought Steel Chest Handle.

Rotary Garbage Receiver Placed Underground

Both sanitation and convenience are important features of an underground garbage receiver which is so pivoted that its separate compartments may be turned beneath the opening as desired. The receiver is placed between the walk and the curbing, in some out of the way corner, or elsewhere as conveniences or city ordinances dictate. As one of the cans is filled, the receiver is easily turned so that another comes into place under the opening. The cans are removed and emptied



Underground Rotary Garbage Receiver.

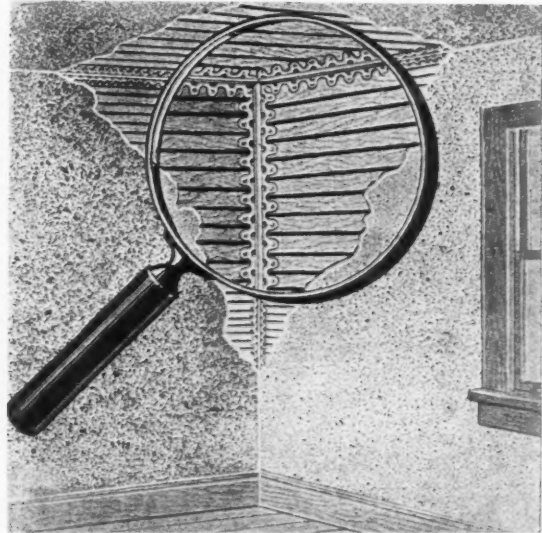
by the garbage man on his visits. The cover is at the ground level so that the receiver is not conspicuous; the likeness with the surroundings is still farther increased by painting the top green if it is in grass. The cover fits tight to prevent odors from escaping and insects gaining access.

FRED TELFORD.

Better Plastered Inside Corners

The inside corner bead shown in the accompanying illustration is designed to insure correct lines in plastered surfaces, where wall meets wall or ceiling—an artistic improvement

that, in the average job of plastering, is badly needed. The bead furnishes grounds for the mechanic to work to, thereby necessitating the application of an adequate coat of mortar over the lath and doing away with the common "skinning" of the mortar coat, especially from the jambs back to the inner angles of the walls.

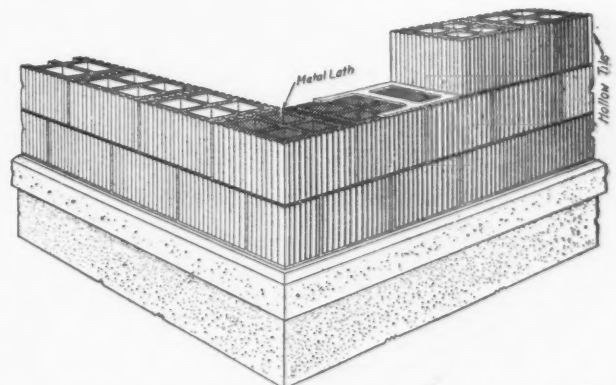


Showing the Application of Inside Corner Bead which Corrects Plastered Lines and Prevents Cracking.

From its construction, the bead in a large degree takes up the strain of building settlement and the warping and shrinking of timbers, thus preventing the unsightly fissures which are commonly seen in the angles of a plastered room or radiating therefrom. Of further importance, it affords a solution of one of the most irritating troubles—the joining of wood lath, metal lath or plaster block partitions on brick or tile walls. By the use of a clip, either wing of the bead may be extended $1\frac{1}{2}$ inches, so as to afford ample nailing room, thus eliminating splintering or clipping. This inside corner bead is made from galvanized, open hearth sheets and is manufactured in 5, 6, 7, 8, 9, 10 and 12-foot lengths.

A New Use For Expanded Metal Lath

In laying up the ordinary hollow tile wall of buildings for stucco there always has been considerable waste of mortar which would drop into the tile. To prevent this waste and to guard against settlement cracks strips of expanded metal lath are laid between each layer of tile before applying the mortar.

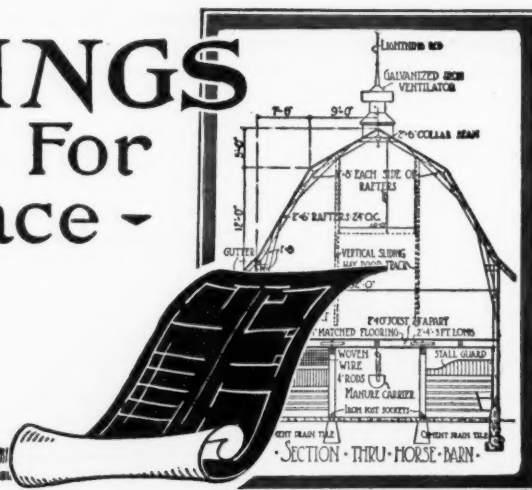


Perspective View Showing How Expanded Metal Lath is Used to Prevent Mortar Waste in Laying Hollow Tile Walls.

This method is being recommended by leading tile manufacturers and by the Associated Metal Lath Manufacturers. The illustration shows the simple manner in which the lath is used to prevent the waste.

FARM BUILDINGS

Arranged For Convenience

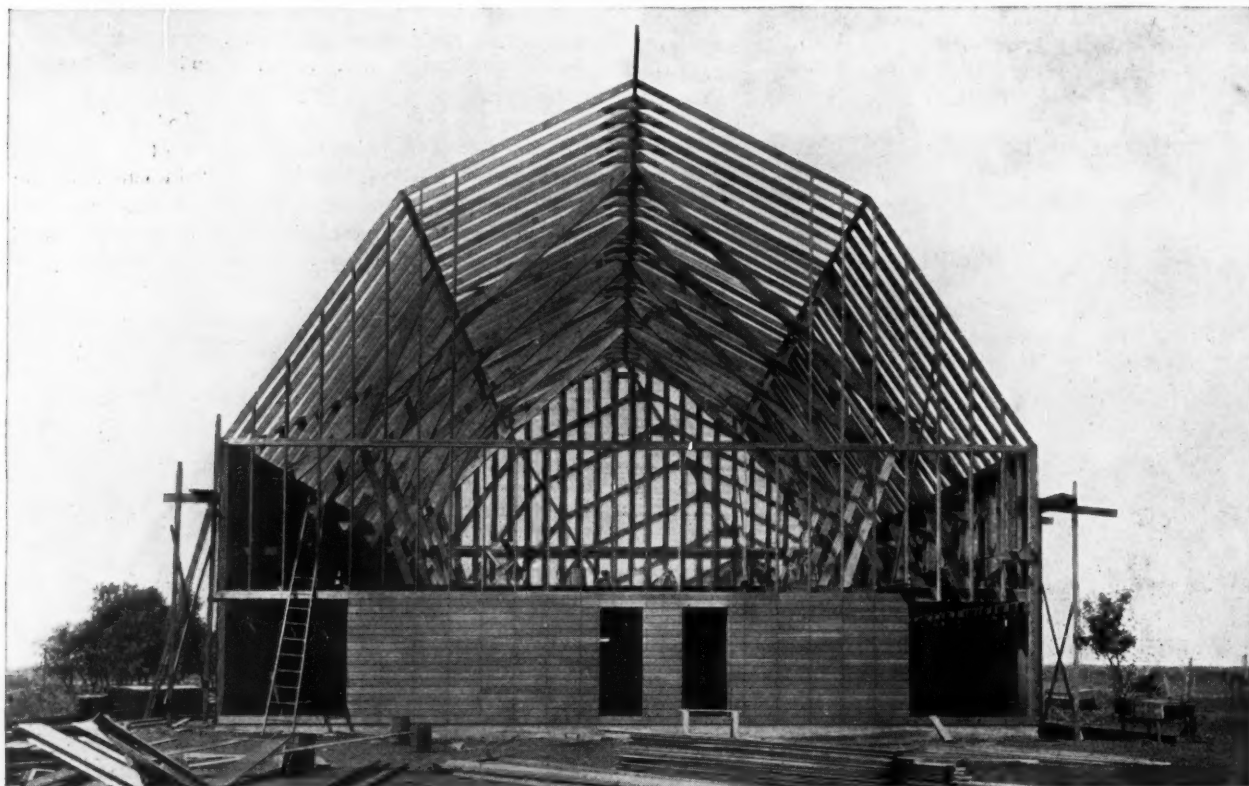


Two Modern Barns and a Hog House

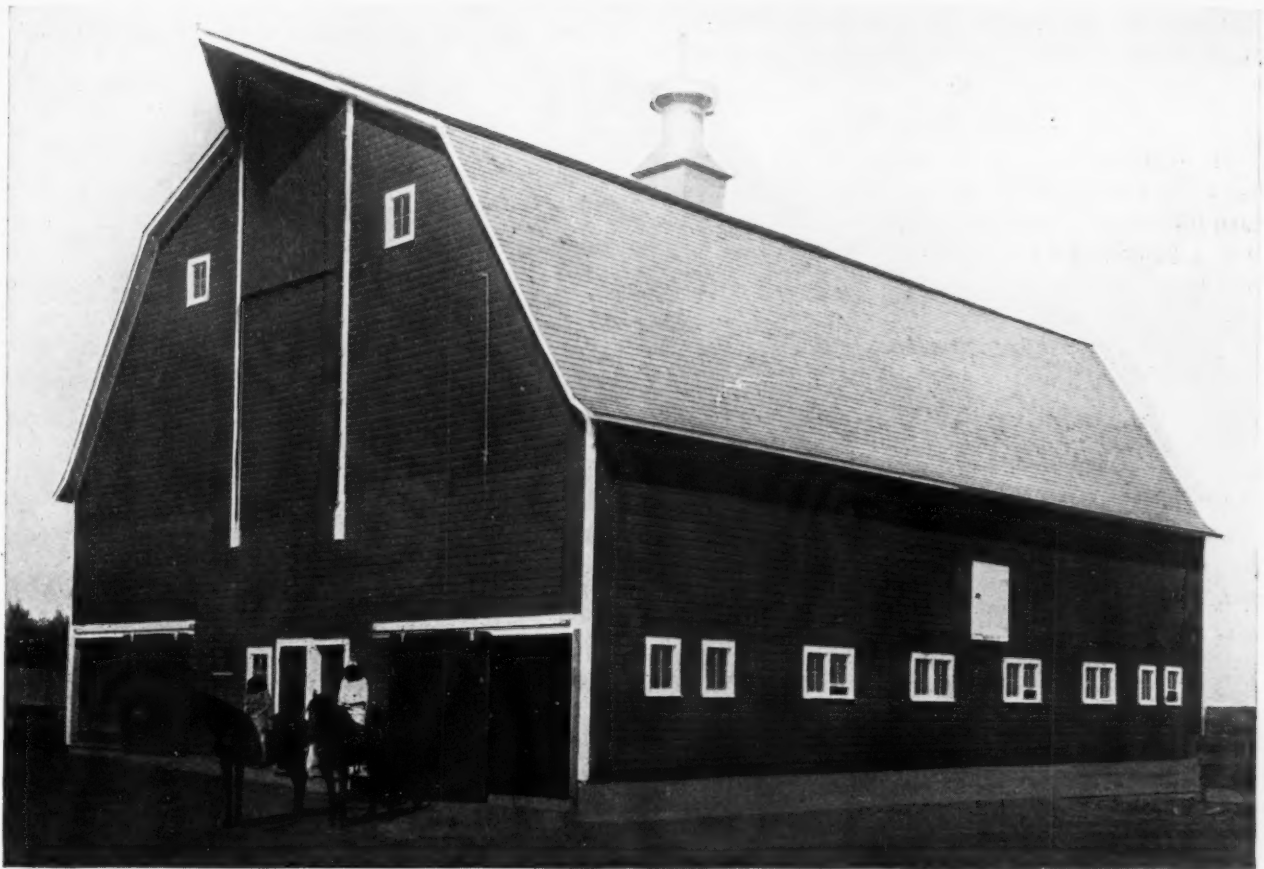
A PLANK FRAME CONSTRUCTED BARN HAVING A WIDTH OF 50 FEET WHICH CONVERTED THE DISBELIEVERS IN THE VICINITY WHERE IT WAS BUILT. AN EXCELLENT DAIRY BARN DESIGN FOR THE AVERAGE FARM. A WINTER HOG HOUSE WHICH WILL ENSURE PROFITS

THE barn shown on page 81 is another demonstration of the adoption of the plank frame type of construction in a district where it was generally believed that "it couldn't be done." The barn was built by Contractor Walter B. Moore, of Cavour, So. Dak., following plans and specifications obtained thru the Cavour Lumber Company, who furnished the lumber used in its construction. The building has a width of 50 feet and is framed in a manner similar to that shown in the view below, which is a barn built by Mr. Moore from the same plan.

Speaking of the original barn built from this plan, Mr. Moore says, in part: "Several men, including a couple of carpenters, said I could not build a barn of that width and have it keep its shape with a 'self supporting roof,' but after looking it over, now that we have the hay mow finished, they admit its there for keeps, fires and cyclones alone excepted." An idea of the present opinion of the farmers in this vicinity regarding plank frame construction may be obtained from a further statement by Mr. Moore: "A party living just a mile from the place I built this barn,



How the Type of Barn Shown on Opposite Page is Framed—the second barn built by Walter B. Moore, of Cavour, S. Dakota, from same set of plans, photographed during construction. This barn is on farm of H. O. Lindquist.



Big Barn Built by Contractor Walter B. Moore, of Cavour, S. Dakota, for A. M. Beall, from plans furnished thru the Cavour Lumber Co., who also supplied the lumber bill.

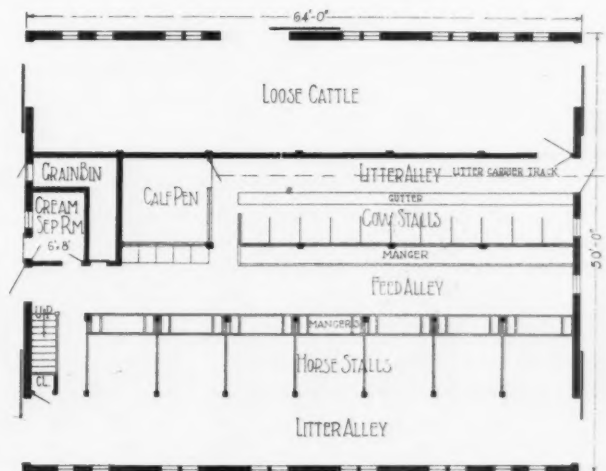
who has one the same size on the ground, told my man that he would trade barns with him and move them both."

The construction view at the bottom of the preceding page is so clear that little need be said regarding the manner of framing this barn. The roof is framed entirely of lumber having a thickness of 2 inches or less, in lengths commonly carried in the stocks of lumber yards anywhere. The rafters are mounted on purlins which are supported by the end bents of the barn and a system of trusses. The trusses are placed at every fifth set of rafters and consist of three parts. One member extends from the hay mow floor joists to the purlin; the second member extends from just below the plate to the ridge and is bolted to the first member at the point of intersection; the third member is a strut from the second member to the purlin. To stiffen the structure, a brace is placed on each side of the barn at each truss from near the intersection of members one and two to the floor joist near the outer row of posts below the floor. All truss joints are securely bolted and spiked so that there is no possibility of play.

The arrangement of this barn was largely determined by the owner, who, perhaps, has reasons for the objectionable features which some might find in the layout. For instance, it conflicts with good practice and the laws in certain states to place horses and dairy

cows in the same barn without definite separation. Also there is a question as to where the feed rack for the loose cattle should be placed and how the hay is to be placed in the rack when the mow is full.

The small cream separator room shown on the plan has been found to be a very good feature, by the owner. It is a room 6 by 8 feet, having a concrete floor. The grain room has a height of 16 feet and extends into the mow; however, the joists extend thru this room so that the strength of the structure is not affected. Ordinary wooden fixtures were placed in



Plan of Above Barn. Size, 64 feet by 50 feet.

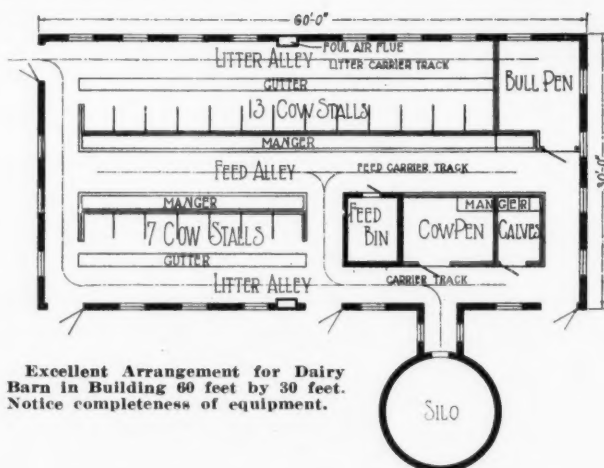
the cow stable at the time of erection, but the owner plans to install modern sanitary equipment eventually.



Excellent Dairy Barn

The building shown in the photographic view below has several features which make it an excellent dairy barn for the average farm having about 20 milch cows. It is a building 60 feet by 30 feet in plan and has a very large mow capacity which, together with the silo which it is intended should be built in connection with it, provides ample capacity for feeding the stock according to best modern practice. The dairy barn needs an abundance of direct sunlight and this design certainly meets this requirement. The dairy barn should be provided with an efficient ventilating system and this design has such a system specified.

There are single stalls for twenty cows and a bull pen, large cow pen, calf pen and feed bin are also provided. The arrangement calls for cows facing in, which means that all of the animals in the single stalls are fed from the central alley. On one side of



Excellent Arrangement for Dairy Barn in Building 60 feet by 30 feet. Notice completeness of equipment.

this alley there is a passageway to the litter alley, near the center of the building. The feed carrier track in the center alley has a switch at the end of this passageway and a short length of track connects it with the litter carrier track, a portion of which track is used to connect with the silo. By this arrangement, the feed



Dairy Barn with Large Capacity Mow and Stave Silo. Notice that there are plenty of good sized nine-light windows to brighten the stable and that adequate ventilation has been provided.



Saw Tooth Roof Winter Hog House of Frame Construction Built Above Concrete which is Extended Out on all Sides of the Building. Doors in all of the pens open on this concrete runway which leads to the outside yard. The runway may also be used as a feeding floor.

bin, cow pen and calf pen are grouped together. The litter carrier equipment provides for the removal of all litter thru one door, thru which the track is extended into the barnyard.

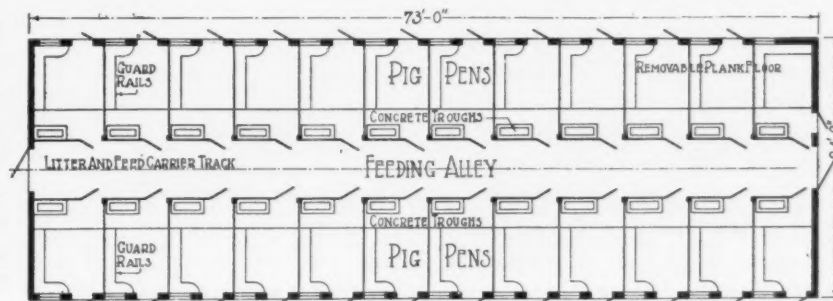
Frame Winter Hog House

The hog house shown in the above view belongs to H. J. McGinnis, of Greene County, Indiana. It is a trim appearing frame building, substantially built. The plan, shown below, indicates the size, 73 feet by 24 feet, and the arrangement, which provides for 24 pens, 6 feet by 8 feet. The number of hogs which can be accommodated will depend upon their size, but under ordinary conditions its capacity would be rated at between 120 and 150 animals.

Each pen has a gate on the feeding alley and a door to the outside runway. Hogs can be easily transferred from one pen to another by means of the gates. The owner has provided low gates in the end doors so that the animals cannot get out into the yard while he is changing them in the pens.

The pens are fitted out with guard rails to protect the small animals, removable plank floors above the concrete to protect the animals from the cold surface and facilitate cleaning and concrete troughs which can be easily filled from the feeding alley. A track which serves for both feed and litter carriers is installed in the center alley.

This hog house is built above concrete, which forms the floor, the foundation walls and a runway entirely around the building. The concrete is carried just high enough under the walls of the building so that the wood sills are kept out of the moisture. The runway is sloped away from the structure on all sides which also protects the lower portion of the wooden structure from moisture. The walls of the building are finished with beveled siding. There are three sets of windows. Two of these are in the side walls of the building and the third set is the standard set provided when the saw tooth roof is used. These windows admit plenty of sunlight into the pens to aid in destroying harmful germ life. The interior walls are closely sealed thruout. Doors into the pens are fitted carefully to prevent strong draughts from striking the animals. In the erection of the building the principal idea must be to provide a good warm shelter for the hogs during the coldest weather. Draughts are harmful and effort directed toward their elimination is well placed.



Plan of Hog House which Provides for About 120 Animals in a Building 73 feet by 24 feet.



conducted by
MATT L. KING
TILE CONSTRUCTION ENGINEER

How Soon Can Silo Roof Forms Be Removed?

THIS EXPERIENCE SAYS "24 HOURS"—WHAT HAS BEEN YOUR EXPERIENCE?
THE VALUE OF SILO ROOFS

By Matt L. King

IN a recent issue, we were building silos of clay blocks but we did not get the roof on. The minute I say "silo roof" somebody asks, "Is it necessary?" No, it is not. "Is it advisable?" Yes, usually. "Is it expensive?" It is a good investment.

There is a lot of talk about warm silos to prevent freezing, and it is important. But after good warm material with air space has been chosen, then too many people forget to put on a roof at all, or neglect to make it tight. Take the warmest house you know of; pry the roof off, and how comfortable would it be at Christmas time? The comparison is good, for warm air always rises and escapes whenever it has a chance.

Taking one year with another, it makes practically no difference with the keeping of the silage at the top whether there is a roof on the silo or not. If the fall happens to be wet, and there are several rains immediately after filling the silo, it is some advantage not to have a roof on the silo. If, however, there

is a week of hot and dry weather immediately after filling, it would be decidedly better to have a roof on.

The idea is this: The top of the silage should be kept level and tramped, and—if at all convenient—wet down daily during the settling period, which continues for about a week after the silo has been filled. That promotes a rapid decay on the surface and so forms a thin, black, wet, air-tight surface of decayed material which will protect all of the material below it from exposure to air and consequent decay. If allowed to take care of itself, it settles unevenly and the heat dries out the surface, causing it to become fluffy and allowing the aid to penetrate as much as several feet, thus spoiling a large amount of good feed.

Permanence in roof construction is about as important as in the walls. We put on brick and block roofs without any false work. And even with concrete the false work does not delay the game very much. Concrete roofs put on yesterday afternoon may and, in order to save time, should have the forms taken out this afternoon. Good bye, we're off to the next job. What do you think of it? It sounds pretty fast, but it has been done thousands of times and has not failed yet.

Here is the way it started: We happened to have put on a concrete roof one Saturday afternoon. On Sunday I did not go to church, but stuck around, wetting down the roof a couple of times. The roof needed wetting, as it was very hot weather, and by staying on the job I could wear less clothes than had I gone to church. Besides that, I felt more at home. Of course,

(Continued to page 86.)



Tile Silo with Concrete Dome Roof; Winona County, Minnesota.



The **ONE** *certain*
kind that leaves
nothing to *chance*

THERE is a certain lock which you *know* will do exactly what you want it to do in the structure you are building. There's a *certain* roofing and a *certain* water-proofing, and a *certain* paint that you are absolutely sure are right.

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Because no garage owner wishes to have his car smashed by a wind-swung door, he insists on having protection. STANLEY Garage Door Holder No. 1774 locks the door open, preventing damage to the car entering or leaving the building.

STANLEY Bolts fasten firmly and securely—STANLEY Butts and Hinges hold the doors in position, prevent sagging and keep the garage weathertight—STANLEY Latches and Door Pulls are well made, operate easily and are attractive in appearance. Specify STANLEY'S—the *certain* garage hardware.

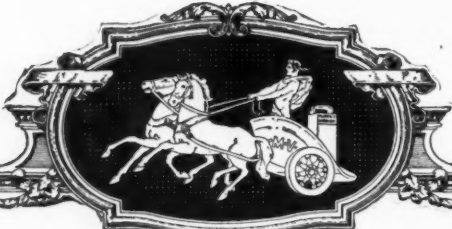
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Even if your customer is holding you down to a minimum price on every item, you can have the kind of finish you believe in, the kind that will show your work at its best and keep it looking well.

Murphy Varnish

"the varnish that lasts longest"

produces a finish unequalled for beauty and durability and its fine working qualities so reduce the amount needed and the labor of applying that it costs no more than second-rate varnish.

Shall we send you information about our products?

Murphy Transparent Interior
Murphy Transparent Floor
Murphy Transparent Spar
Murphy Nogloss Interior
Murphy Semi-gloss Interior
Murphy Univernish
Murphy White Enamel
Murphy Enamel Undercoating

Murphy Varnish Company

Franklin Murphy, Jr., President

Newark Chicago

Dougall Varnish Company, Ltd., Montreal Canadian Associate

A N A

(Continued from page 84.)

understand, I felt at home at church, but just a little bit more on the farm.

The roof was between a one-fourth and a one-third pitch cone. The silo was 16 feet in diameter. The concrete was about 3 inches, or a trifle less, in thickness at the wall and about 2½ inches thick at the peak. There were steel rods extending around the roof imbedded in the concrete on the wall, and some woven wire stock fencing in the concrete of the wall roof.

There was about \$15.00 invested in the false work and therefore, was worth saving if it could be removed before we took the scaffold out, so that the whole thing could be used on the next silo which was to be built down the road about half a mile. Under these circumstances I naturally spent a little time figuring out what strength the concrete would need to make it safe to take out of the forms.

The natural pressure of any concrete in such a roof, having no load on it, does not exceed five pounds to the square inch. It is easy to see that after only an hour or two the concrete would have this strength, and by Monday morning our roof had strength to spare. It seemed, however, so out of the ordinary that figures were gone over several times and each time were found to be right.

It takes something akin to faith to substitute figures for common sense. Monday morning the mason, Coon von Zee, and I were standing on the roof over the wall discussing the matter. Finally I suggested that we take the false work out. The reply was a quizzical smile and the suggestion that I go under and cut it loose. I think I figured the whole thing over again while taking a firm grip on my hand ax to knock out the first prop. You see, it was forty feet to the ground, and I had a wife and baby girl at home.

It worked all right. But even that did not satisfy that Holland Dutch mason. He did the next job alone. He finished the roof one afternoon and pulled out the false work the next morning. I saw him afterwards and explained to him that even tho his wife and four babies were nice, nobody wanted the job of taking care of them, so he had better let the next roof have a little longer time to set. But I failed to reform him. He built a bunch of them that way and got by with all of them.

Afterwards we tested one of these roofs by piling 87,000 pounds of sacked sand and pig iron on the peak of the roof before the concrete was twenty hours old. There was not a single check or crack as a result.



Tile Silo with Popular Gambrel Roof of Sheet Metal.

*This Combustible
Roof caught Fire from a
Fire in the next Block*



The chances of a building being burned from a fire within are really infinitesimal when compared with the danger of fire being communicated from the outside—spreading to your building from other fires perhaps blocks away.

If your roof is fire-proof—covered with

AMBLER Asbestos Shingles

that tremendous risk is eliminated.

They are not only fire-proof, but wind-proof, rain-proof, frost-proof, sun-proof, and last but not least—repair-proof.

A roof that will not burn, warp, shrivel, curl or fade. Made in three colors—Newport, Grey, India Red or Blue Black.

*The Full Story with Photographic Pictures of Beautiful
Buildings Roofed with AMBLER ASBESTOS Sent
on Request—Also Samples and Prices.*

Keasbey & Mattison Company
Dept. B-1 Ambler, Pa., U. S. A.

Manufacturers of Asbestos
Shingles, Building Lumber,
Corrugated Sheathing,
Pipe and Boiler
Coverings.

**That
could
not
happen
to this
house**



*Davenport Res.
Verona N.J.
Contr. W. T. Kientz*

CORRESPONDENCE DEPARTMENT

Our Readers are Requested and Urged to Make Free Use of These Columns for the Discussion of all Questions of Interest to Carpenters and Builders

A Big Hemlock Barn

To the Editor:

Butternut, Mich.

In your September issue of the AMERICAN BUILDER I see where you ask for pictures of buildings from different parts of the country.

I am sending picture of a plank frame barn designed and built at Butternut, Mich., by Contractor Geo. E. King.

I have taken the AMERICAN BUILDER for a good many years



Well Built Barn at Butternut, Mich.

and like it very much, and also Radford's Estimating and Contracting book. If you wish for information as to the method I use in building and raising plank frame barns I will write them for next month's issue. GEO. E. KING.

Answer—We are sure the readers will be interested in your method. Send it along. EDITOR.



About Valley Shingling

To the Editor:

La Fargeville, N. Y.

One correspondent recently asks which is the right way to shingle a gutter or valley, with the common shingles or with the line of the gutter?

I claim that the proper way is with the line of the gutter, tho I think that if a man would take the time and use enough shingles so as to make a first class job, the other method would be as good. But the trouble is that the average workman will not do this, and a poor job results, while in laying the shingles on the gutter line almost any one who can do the work at all, will do as good a job as the next one.

When the gutter shingles are laid with the common ones there is a chance for them to split after the work is finished and cause a leak, but if laid up the other way they may split when the nails are driven; if not, they are likely to do so later.

The main point to be remembered is that one should use a

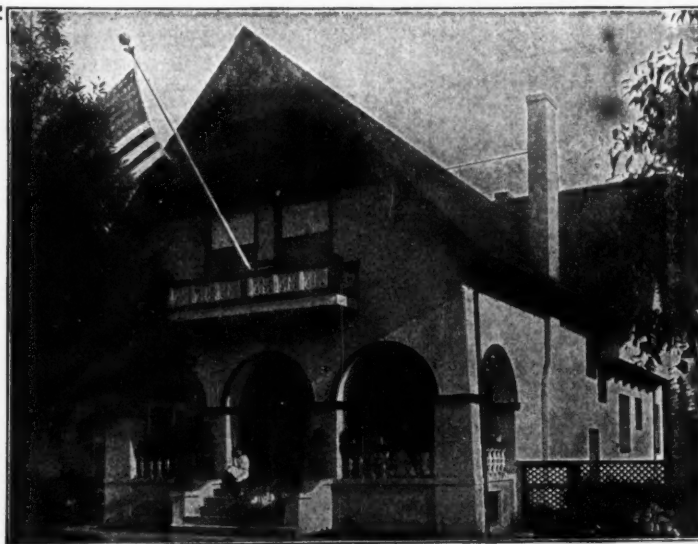
(Continued to page 90.)

Modern Homes at Less Cost

You can build the finest types of strong, permanent, fireproof structures at a decided saving of material and labor—by using Hy-Rib and Rib Lath.

These materials eliminate all forms for pouring cement—saving expense, labor cost and time of erection. Because of their extraordinary stiffness and rigidity, they permit the wider spacing of studs and supports, saving in the cost of studding and labor of installation.

Begin now to build with Hy-Rib and Rib Lath. The line is complete, including Diamond Lath, Channels, Studs, Corner Beads, Base Screeds, etc. They provide a more valuable building in every respect—and assure the greatest satisfaction to your customers.



Rib Lath Residence for F. L. Spaulding, Los Angeles, Cal.—S. Munson, Architect

Hy-Rib A steel sheathing, stiffened by rigid deep ribs. Manufactured from a single sheet of steel. Its use is decidedly simple. The easily handled sheets are fastened to the supports and the plaster or concrete applied. No forms, stiffening channels nor wiring required.

Rib Lath A superior beaded ribs that span between the studs, making it exceptionally stiff and rigid and permitting the wider spacing of studs. Provides a perfect clinch for plaster and will not crack or streak. Saves time, labor and material in erection.

Write for Hy-Rib Handbook, with specifications, tables, illustrations, etc. Every builder should have a copy. Address Hy-Rib and Lath Dept.

TRUSSED CONCRETE STEEL CO.

YOUNGSTOWN, OHIO

Representatives in Principal Cities



This is the ANSWER to the Roof Question

Go into the question "What Kind of a Roof"? with
investigation, and the practical answer is:

a Candid and Full Inves-

"RED CEDAR SHINGLES"

He who builds with Red Cedar Shingles, builds with nature's finest sterling product. **Durability and unchanging architectural beauty** are the outstanding qualities of the homes and other structures built of Red Cedar Shingles. Do them justice in the laying—with good workmanship, good old-fashioned cut or zinc-coated nails (never wire nails) you have Roof or Siding that **WILL LAST FORTY YEARS OR MORE.**

A Guarantee of Grade and Quality

The Rite-Grade Inspection Mark appears on only such shingles as in every way conform to the rigid specifications of the West Coast Lumbermen's Association. When you buy **INSIST** on the Mark being on each bundle.

Below (in the left-hand corner) is the identification mark of all Red Cedar Shingles that pass inspection.



SHINGLE BRANCH—West Coast Lumbermen's Association
426 Henry Building, Seattle, Washington

FREE—Write for the following literature, for one or all address below:

(1) **Sample Shingle**—An actual piece of Red Cedar, showing what a fine piece of building material it is. (2) **Farm Building**—Very useful facts in this book. (3) **Bungalow Book**—Twelve pretty designs with floor plans. (4) **Distinctive Homes**—Twelve fine residences with floor plans. (5) **Report of the University of Washington** giving results of tests on the comparative fire resistance of roofing materials.





20 years from now

Will the roof you are putting on today still be giving satisfaction in 1937?

Will you be ready then to say: *"This roof has never cost me one cent for repairs!"*

It's worth money to you to know the answer!

Many RU-BER-OLD roofs laid previous to 1896 are still giving good service and have never needed repairs.

Genuine RU-BER-OLD contains no sand, tar, paper, wood fibre, or any other substance that will crack, run, rot, warp, rust or leak.

Made in Slate Gray, Tile Red and Copper Green. Your dealer will show you samples and quote prices.

THE STANDARD PAINT CO.

587 Woolworth Building, New York
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Also makers of Ru-ber-old Shingles and
Impervite Waterproofing for Concrete

The Paraffine Paint Co., San Francisco, (Under License)
The Standard Paint Co. of Canada, Ltd., Montreal



Pronounced "RU" as in RUBY
RU-BER-OLD
ROOFING
COSTS MORE - WEARS LONGER
MADE BY THE STANDARD PAINT COMPANY, NEW YORK BOSTON CHICAGO

Look for the "Ru-ber-old Man" on every roll of genuine Ru-ber-old

(Continued from page 88.)

wide gutter of galvanized iron and should be careful not to nail too far down on the iron.

I have seen a few gutters laid with a small 5 by 7-in. piece of tin in each course of shingles, the shingles being brought together so as to leave no open gutter. This is said to make a very good job and one that will not leak. This is one of the "unsettled questions," and some will want it one way and some the other.

There are several other questions which are open to discussion, as what size nails to use for shingling—3s or 4s; whether to put two nails in every shingle, or more in the wider and less in the narrow; how high up to nail shingles; whether to use the line or straight-edge. In case there is not much difference, better please the man who pays for the work.

One can do a better job in putting new sills under an old building to mortise them together and pin them as in new work, than to halve and fasten with snippers. There are some who will tell you it can not be done as there is no chance to drive the pins; but those who have tried it prefer it.

The galvanized iron ventilators on barns are sometimes simply nailed to the roof boards; and while they generally stay, there is a better way, as I recently learned. One man wanted two of them put up and wanted frames made of 2 by 4's and nailed to the rafters to set the ventilators over. I thought it would be quite a job, but found that by making these frames on the ground and rounding the corners off so they would just slide into the stud it was not a hard task. Then I took them up on the roof, and after cutting the holes I spiked one side to the rafter and put in an extra pair of short rafters (4 feet long), for the other side, and then after the steel was set down over this and fastened, it made a solid job that will stay till some one takes it down.

There is another thing which seems to me is often done poorly; that is, boarding or siding a barn vertically. Some men are not particular about breaking joints and will sometimes have a joint all across on one beam or will have four or five boards match in one place. The proper way is to have only one joint in a place and have these beveled. The corner boards should not only be beveled but should be cut on a mitre so that they will make a tight joint, or the opening will show when one sees the edge of the boards.

JOHN UPTON.



Warm, Well-Built House

To the Editor:

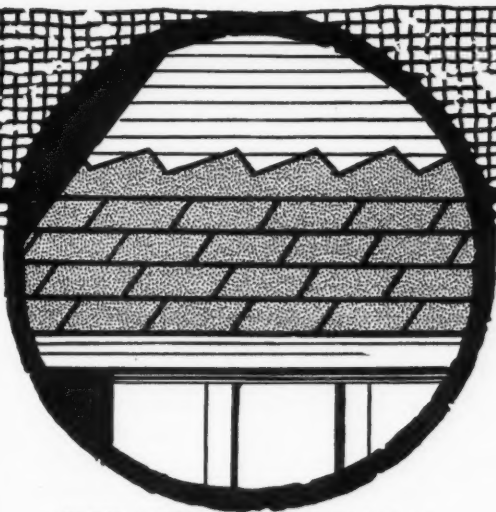
Grand Forks, N. D.

This is a house designed and built by Contractor Ed. Coltom, Hatton, N. D., for Ole T. Stenmo, Hatton, N. D., on

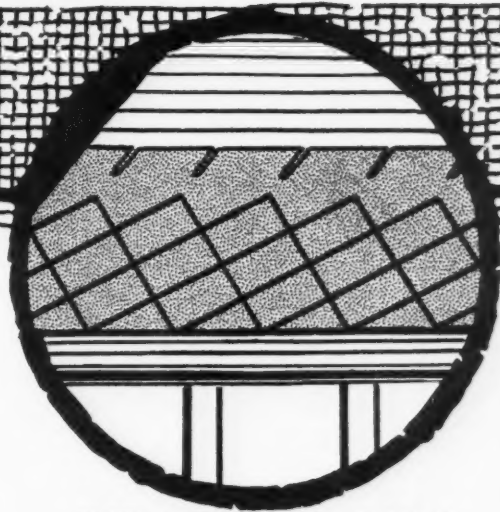
(Continued to page 92.)



Residence Designed and Built by Ed. Coltom at Hatton, N. D.



*FLEX-A-TILE Reversible Slab Laid
in American Shingle Style*

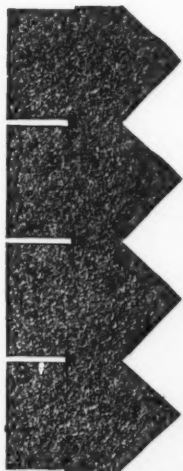


*FLEX-A-TILE Reversible Slab Laid
in American Diamond Style*

All Styles of Asphalt Shingles in One

THERE are so many shapes of Asphalt Shingles and so many different styles of laying that we have decided to make FLEX-A-TILES in a new slab designed to fit the ideas of any home builder. Now all you need do is order FLEX-A-TILE Reversible Slabs as soon as necessary to secure prompt delivery—then, if the builder later decides he would like the shingles laid American Shingle Style—or American Diamond Style—or American Block Style—you will be ready with Reversible Slabs. Or, many unique effects can be obtained by alternating the positions of the slabs.

FLEX-A-TILE Reversible Slab Asphalt Shingles



These Reversible Slabs are genuine FLEX-A-TILE Asphalt Shingles through and through—made with the same scrupulous care and by the same scientific methods of manufacture as the famous FLEX-A-TILE Asphalt Shingles you have known in other styles for so many years. But they are made in this new slab form for *your* convenience. Each slab is *four* FLEX-A-TILES in one. This alone means a *saving of 38 per cent*

in nails. And this great saving in nails, together with the ease of laying FLEX-A-TILE Slabs as compared with old-style single shingles, means a *saving to you of 50 per cent in time and labor of laying.* FLEX-A-TILE Slabs can be used equally well on new work or over old shingles, and the rich red or fadeless green natural-stone surfacing adds a wealth of beauty to any building. Write today for samples and prices.

THE HEPPEES-NELSON ROOFING CO.

Factories: Minneapolis, Chicago and New Jersey
Dept. K, 1010 Kilbourne Avenue, Chicago

FLEX-A-TILE Roll Shingle—No-Tar Asphalt Paint—Other Guaranteed Heppes Products

FLEX-A-TILE

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

(Continued from page 90.)

his farm, six miles from town, last summer. It is 32 by 38 feet, has nine good big rooms—the kitchen is especially big—bathroom on second floor and pantry on first. There is also a bathroom in the basement; icehouse in the rear outside the main building and connected with the basement; good big washroom; backstair to second floor; stair from outside to basement and also from kitchen; cistern in basement; hot water heat and electric light. There is a cement floor on the porch, which curves up 3 inches around the edge so that water can't get to the wood. The heating, vacuum and water pipes are concealed in the walls. Inside finish is fir, stained dark brown.

Your subscriber was the foreman on the job, and I think it is a pretty good farmhouse. It is lined with Flaxlinum instead of backplaster. Your February number is a dandy one.

T. O. BREIUNG.



Question For Roofers

To the Editor:

Bentonville, Ark.

Please allow me to ask for information in regard to shingled valleys. Is there more than one method of putting in shingle valleys without the use of tin or other metals? If so, which is the best method?

S. G. R.



Takes Camera on to Job

To the Editor:

Creighton, Mo.

Enclosed you will find a photo I have taken. I always carry my camera on the job. Will send you a photograph of the bungalow I built so you can put it in the AMERICAN BUILDER if you can find room for it. Your books are fine.

C. E. RANDOLPH.



Two of Randolph's Men and One of His Bungalows.

Wisconsin to License Architects

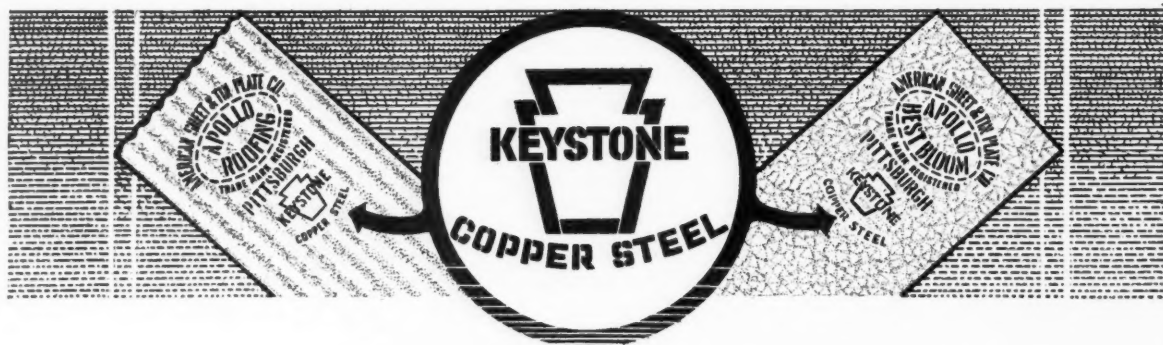
To the Editor:

Madison, Wis.

The recently adjourned State Legislature of Wisconsin passed an architects' registration law similar to that of New York State, this law to become effective Jan. 1, 1918. On or after that date no person can use the title "architect" in a business way in the State of Wisconsin or represent himself to be an architect unless he has a certificate of registration.

An examining board has already been appointed by the Wisconsin Industrial Commission. The industrial board issues certificates to those certified by the board of examiners. The registration law does not bar from the designing of buildings all persons who do not possess a certificate, but it does prevent such persons from using the title of "architect."

GEO. THOMPSON.



Longer Life—durability and rust resistance—is assured from Keystone Copper Steel products.

When this alloy steel is used for Galvanized Sheets, Black Sheets or Terne Plates, the *Keystone* is added below regular brands. Shall we send booklets showing weather tests?

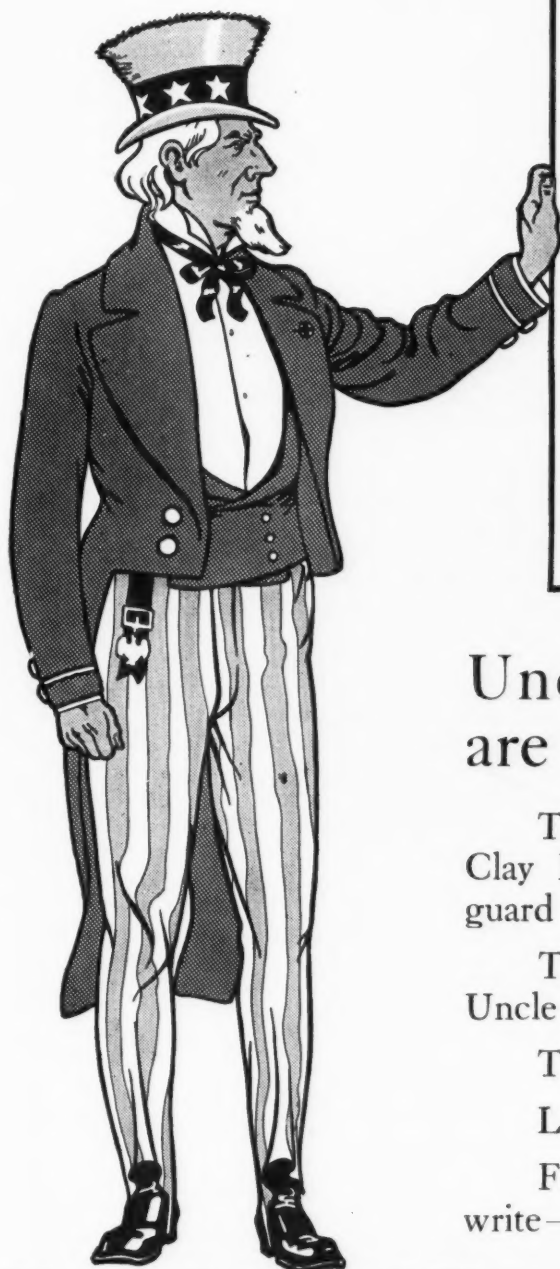
American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

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United States Government uses Vitrified Clay Pipe



Typical Barracks



Sanitary Installation



Miles of Vitrified Pipe

Uncle Sam's cantonments
are fortified against disease.

Twenty-five to thirty-six miles of Vitrified Clay Pipe building drainage and main sewerage guard the health and lives of the boys in khaki.

The world's greatest sanitarians serve in Uncle Sam's Army.

The cantonments are their crowning work.

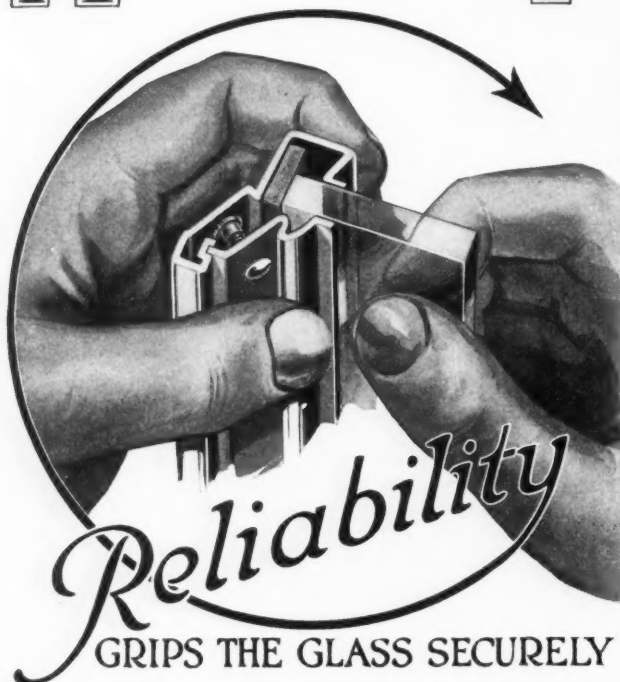
Learn a lesson from Uncle Sam.

For descriptive literature and specifications write—

THE SEWER PIPE MANUFACTURERS' ASSOCIATION
JOHN L. RICE, FIELD COMMISSIONER SECOND NATIONAL BLDG. AKRON, OHIO

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Kawneer



GRIPS THE GLASS SECURELY

WHENEVER you undertake a new Store Front Job, your ambition is to select a construction that will hold glass securely, a **RELIABLE** glass setting.

Kawneer Store Front Construction holds the glass with a *firm, yet resilient* grip. As the gripping members are both resilient, 100% of resiliency is obtained. Breakage is therefore, reduced to a minimum.

Just take a look at the above illustration. Doesn't this tell the story of resiliency and firmness—of its **RELIABILITY** of holding glass safely? If you tighten up the screws properly and pull on the glass, you will find that it offers a strong resistance. That, is due to the *resilient grip*, it is firm—it grips the glass securely.

Try the same thing with an ordinary glass stop. It offers *no* resistance, there is *no* resiliency—on the contrary, it adds dangers to your glass setting, it will shrink, warp and rot. Not so with Kawneer. As you install it, so it will stand for times to come, giving a lasting satisfaction. It is *firm, resilient and permanent*, it is **RELIABLE**.

Our Catalog "H" contains details of our construction and its installation. Just pin the coupon to your letter head and *your* copy will sent by return mail.

KAWNEER MANUFACTURING COMPANY
NILES, MICHIGAN

PIN THIS COUPON TO YOUR LETTERHEAD

*Please send me a
copy of Catalog H*



NEWS OF THE FIELD

J. P. Beck Dies Suddenly

On Saturday, Sept. 8, James P. Beck died at the Presbyterian Hospital, Chicago. At the time of his death he was general manager of the Portland Cement Association. He was a little past 31 years of age, having been born Jan. 27, 1886, at Odell, Ill.

Mr. Beck was graduated from the University of Illinois in 1907, with the degree A. B. On his graduation he entered the employ of the Universal Portland Cement Company. Two years later he was made publicity manager of that company. His work while identified with the Cement Products Exhibition Co. are too well known to need comment. Mr. Beck was also a prime mover in the two national conferences which were held in Chicago known as the National Conference on Concrete Road Building.

During the fall of 1915, Mr. Beck was chosen to formulate plans for broadening the scope of work of the Association of American Portland Cement Manufacturers, the headquarters of which were then in Philadelphia. After several months' work Mr. Beck submitted at the annual meeting of the association in December, 1915, a very comprehensive plan which was adopted essentially in its entirety. Mr. Beck was then made general manager of the association to put into effect and carry out the plan which he formulated. How successful this has been is known to everyone whose interests have kept them in touch with the rapid developments of the cement industry and the work of the Portland Cement Association during the past two years.



H. E. Hilts Manager Portland Cement Association

H. E. Hilts, formerly district engineer at San Francisco for the Portland Cement Association, has been elected by the Board of Directors of that body to succeed the late Mr. J. P. Beck as general manager.

Mr. Hilts was born in New York and obtained his technical and engineering education at the University of Pennsylvania. His first work was as rodman with the Mexican International Railroad. Later he was in the employ of the Philadelphia and Western Railroad. For two years he was instructor in the engineering department of the University of Pennsylvania, after which he entered the service of the New York Central Railroad, leaving that company to become associated with the Portland Cement Association as road engineer in 1913, for territory comprising the New England and Northeastern states, having been stationed at Albany and Easton, Pa. In 1915 he was appointed district engineer at San Francisco.

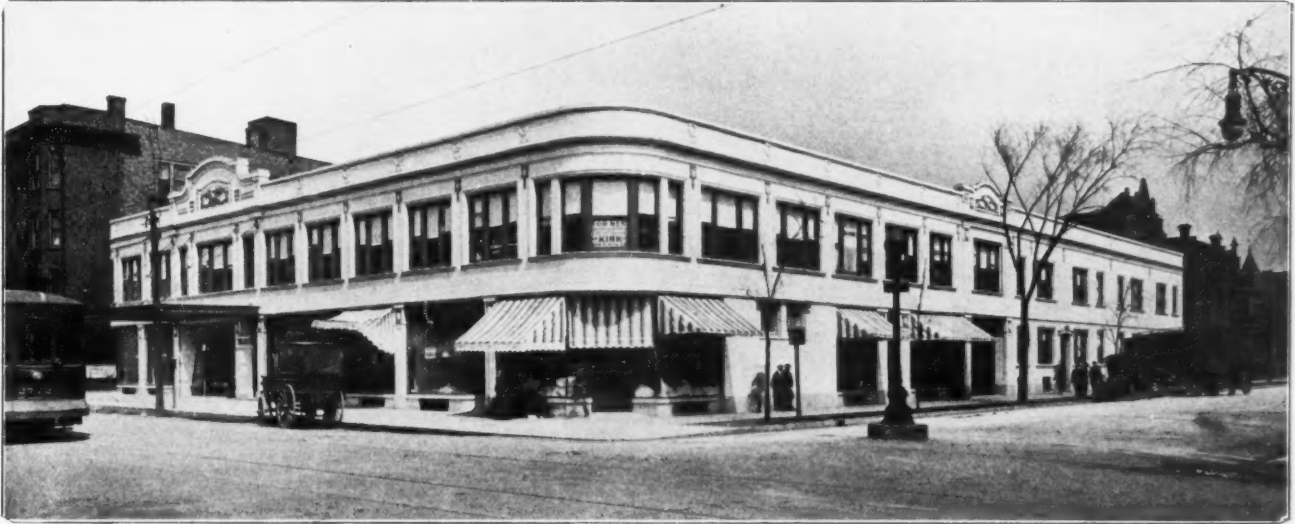


Richardson Joins Berger Organization

H. J. Richardson has been appointed works engineer for the Berger Manufacturing Company, Canton, Ohio. His new work includes the power plant, new constructions, maintenance and repair of manufacturing equipment and buildings.

Mr. Richardson recently was connected with the New England Westinghouse Company where he was manager of the gauge department.

MIDLAND



For the big store, for the little store, for any store
There is nothing better than

MIDLAND TERRA COTTA



TERRA COTTA

1515 Lumber Exchange, Chicago

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

Silent High Speed Chain Drive Adopted for American Floor Surfacers

The silent high speed chain drive has been adopted by the American Floor Surfacing Machine Company, 515 S. St. Clair St., Toledo, Ohio, and is being furnished on all of their surfacers.

This chain, the construction of which is shown in the accompanying illustration, has the advantages that it is strong,



Silent High Speed Chain.

wears out very slowly and runs smoothly at all reasonable speeds. Its smooth action is due to the peculiar action of the links, which grip and release the sprocket teeth instead of sliding over the surfaces. The low friction resulting infers high operating efficiency.



Care of Oak Floors Is Simple

All floors require some attention. No housewife expects to keep her floors looking beautiful without some attention. Naturally every housewife wants to find the simplest way of giving her floors the attention they need. In searching for this simplest way many housewives have adopted methods that experts on floor finishes know are very ruinous to the finish, and very often to the wood itself.

If one only knows how, nothing is easier than the care of a well finished oak floor. Usually the care of floors is entrusted to the discretion of servants whose intentions may be good but whose methods are more often bad.

There are several preparations put up by varnish and wax manufacturers that give excellent results for cleaning and the care of oak floors which can be bought at any department or paint store.

Never use water, oil, kerosene, turpentine, soap, Gold Dust, Dutch Cleanser, or any other cleansing agents, except as follows:

Shellac Finish.—If water has been spilled upon the floor and it has turned white in places, moisten a soft cloth with a little alcohol and lightly rub the spots, which should immediately disappear. Do not repeat this operation too often, however, or the finish will be entirely removed. Shellaced floors sometimes take on a clouded or grayish appearance due to dampness in the air. This condition can usually be greatly improved by the same treatment as above. If the finish has become so dirty that it is necessary to remove same entirely, first scrub the floor with wood alcohol and then bleach it with oxalic acid—never use lye, as it turns the wood black and ruins the surface permanently. After all moisture has evaporated the original finish may be applied.

Varnish Finish.—If the finish has become badly worn, thoroly scrub it with a brush and Sapolio and water (never flood the floor). After it has dried out, apply a thin coat of varnish; or in case time cannot be allowed for the varnish to dry, wax may be substituted. Do not use shellac on top of old varnish or varnish on top of old shellac.

Wax Finish.—Waxed floors should be dusted daily with a broom covered with canton flannel. Keep a can of wax on hand, and should the finish become worn in the doorways or elsewhere, apply a thin coat, rubbing well into the wood. Allow the wax to dry for one hour and then polish thoroly. Before rewaxing the floor, scrub it thoroly with turpentine and a piece of cheese cloth.



Drop us a line and tell us what you are figuring on building this Spring

HUNDREDS of progressive contractors are finding that brick construction is as easily handled as frame; and it has many advantages—the principal one is, that it gives your client a more permanent home and relieves him of the continual expense of painting and upkeep.

Then we will tell you how "Artfashioned" Brick can be used to advantage

Artfashioned Brick are made in a wide range of colors and textures. There is a Nuvoque Brick for every style of architecture—from the modest bungalow to the best building in town.

You can get "Artfashioned" Brick from your Local Dealer

We have hundreds of lumber dealers in the Middle West now handling "Artfashioned" Brick. If your local dealer does not carry our line ask him to write us. We prefer to furnish it through his yard.

BOONE BRICK TILE & PAVING CO., Manufacturers of Artfashioned Brick, Boone, Iowa
Sales Offices all through the Middle West

MADE IN IOWA!



Build with Beaver Brick

Beauty and permanence of construction can be obtained with this brick at a cost but slightly greater than for frame.

Well burned face brick is universally recognized as the most beautiful and durable building material in existence, and the advantages of brick construction are many.

¶ Brick homes are practically indestructible. Insurance rates are low and the cost of upkeep such as painting and repairs are reduced to a minimum.

¶ Houses of brick maintain an even temperature at all times. Cool in summer and warm in winter.

Beaver Brick is made in a variety of colors and textures. Beaver Clay, Turkestan Vertex and Volcanic Extreme Rough Texture represent the best in facing brick. Our catalog shows them in their natural colors.

Write Today

BEAVER CLAY MFG. CO., NEW GALILEE, PA.
SALES OFFICES IN ALL CITIES



Hy-tex Store Front, Saint Louis

A good store front, with ample space for window display, is a merchant's best and cheapest advertising. Brick not only makes a beautiful and attractive store front, but has the added advantage of durability, fire-safety and real economy.

The American Builder is showing you how to work with brick; and any Hy-tex office is ready to co-operate with you.

Hy-tex

The Standard of Quality in Brick

Hydraulic-Press Brick Company

Saint Louis

Branch Offices: Baltimore, Chicago, Cleveland, Davenport, DuBois, Pa., Indianapolis, Kansas City, Minneapolis, Omaha, Philadelphia, Roseville, Ohio, Toledo, Washington

Largest Manufacturers of Face Brick in the World

Send for these Booklets

"Hy-tex Brick" tell you the many advantages in building with brick, and something about the completeness of the Hy-tex line and the benefits you can derive from Hy-tex Service.

"Suggestions for Small Hy-tex Homes"—shows the possibilities of brick in small homes. It is illustrated with perspectives and floor plans of small brick houses.

Mail the Coupon NOW

Hydraulic-Press Brick Co.
St. Louis, Missouri

Send me "Hy-tex Brick" and "Suggestions for Small Hy-tex Homes."

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City..... State.....



ALLIANCE MULTI-COLOR RUFF BRICK

EXCEL ALL OTHER BRICK as to beauty of coloring. The chromatic scale of colors runs through the beautiful rough-texture faces, most of the individual brick showing on the face of each brick three or four or more of the seven primary colors or their shades—gun-metals, wines, chocolates, browns, ox-blood reds, bluffs and multi-colors.

Mr. Dealer: If you want the best seller among the many brick made today ask for the agency for Alliance Multi-Color Ruff Brick—beautiful rough-texture and all the colors of the rainbow. Samples and prices on request.

The ALLIANCE BRICK CO., 25 South Linden Ave., Alliance, Ohio

Shackelford Brick and Hollow Tile

Made of Iowa's Best Shale

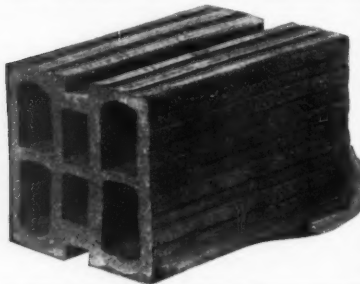
Shackelford common brick and hollow tile are made of Iowa's best shale, and always give entire satisfaction. They are in wide demand throughout the Central West. We would be glad to have your inquiry.

Our Lumberman's Special is a brick that hundreds of lumber dealers are carrying to decided advantage. If you carry chimney and foundation brick get in touch with us at once—we have something of interest for you.

SHACKELFORD BRICK CO., Des Moines, Ia.

"HEAVY DUTY" INTERLOCKING TILE

The **STRENGTH** of BRICK and the **DRYNESS** of TILE are combined in **Vigo American Heavy Duty Interlocking Tile** to make a **BETTER** wall than solid brick and at two-thirds the cost.



We also manufacture Fireproofing, Building, Arch, Partition and Drain Tile, Hollow Brick and other shale products. Send for our literature.

VIGO-AMERICAN CLAY COMPANY

7th and Ohio Sts., TERRE HAUTE, IND.

WITHOUT OUR ESTIMATE YOU HAVE NO COMPETITION

The Whitacre-Greer Fireproofing Co.

Manufacturers of

**HOLLOW TILE FIREPROOFING
and BUILDING BLOCK**

Waynesburg, Ohio

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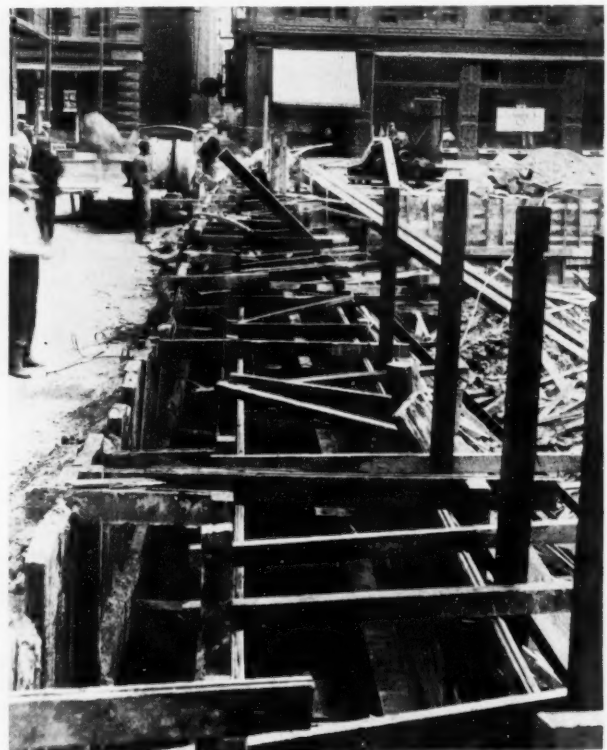
FIREPROOFING MADE OF PURE FIRE CLAY

Rapid Retaining Wall Construction in Limited Space

By F. E. Kouder

ONE of the most imposing structures erected this year in the Chicago loop district is the A. H. Woods Theatre and Office Building now under construction in the northwest corner of Dearborn and Randolph streets. This building faces 181 feet, 2 7/8 inches in Dearborn street, extending from Randolph street on which it has a frontage of 80 feet, 5 1/2 inches, to an alley in the center of the block. The office building is 10 stories high, occupying the corner facing the two streets and extends 72 feet in Dearborn street. The theatre is two stories high, designed to seat 1800, and occupies the remaining frontage in Dearborn street.

Owing to the present high price of steel the frame



Pouring Concrete Direct Into Forms for Foundation of Chicago Office Building.

of the office structure is composed of a light steel core enclosed in reinforced concrete. The theatre has a trussed steel frame. The entire frontage on streets and alley is faced with pink terra cotta with a large sculptured group opposite the stage and an overhanging ornamental iron balustrade connecting with the balcony floor of the theatre in Dearborn street.

The architects are Marshall & Fox, and the general contract was let to Longacre Construction Co., Inc., who sub-let the foundations, footings and retaining walls to W. J. Newman Co., both of Chicago.

The foundation is a semi-floating type comprising five concrete filled caissons extending to hard pan 60 feet deep to support the inner wall and carry part of

(Continued to page 100.)



These Self-Sentering Jobs Are Fireproof, Wearproof; Defy Time and Resist Weather

The top illustration suggests the wonderful rigidity of Self-Sentering, which makes it suitable for reinforced concrete roofs, floors, ceilings, partitions, steps, stairs, garages, fences, bridges. The remaining illustrations suggest its pliability and adaptability to all kinds of curved construction.

The roof is that of the Carnegie Steel Company's office building, Youngstown, Ohio. The Self-Sentering acts as form and reinforcing for the concrete.

Self-Sentering

Form and Reinforcement for Concrete Construction

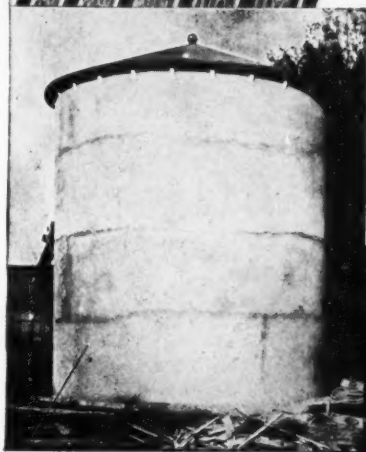
No matter what kind of roof is desired—pitched, dome, saw-tooth, monitor, or flat—Self-Sentering eliminates the need of temporary wooden forms and the cost of building them up and tearing them down. The heavy steel ribs and the diamond-mesh connecting fabric support the mass of wet concrete and act as permanent bond and reinforcement after the concrete has set.

A sheet of curved Self-Sentering and two water tanks, with the concrete reinforced by that material, also are shown on this page. Self-Sentering can be curved at our factory to any desired radius—12 inches or over. It takes the shape of conduits, culverts, water tanks, curved floors, unusual effects in roof and partition construction, and miscellaneous fireproofing uses such as posts and false columns.

Wherever concrete is used, the use of Self-Sentering results in fireproof, lightweight, money-saving, permanent construction.



Ask for the GF "Fireproofing Handbook," which gives complete information about speedy and economical concrete construction.



The General Fireproofing Co. Youngstown, Ohio

Manufacturers of All Types of Metal Lath,
Concrete Reinforcements, Waterproofings

BRANCH OFFICES:

New York City	Philadelphia
Chicago	San Francisco
Kansas City	Cincinnati
Buffalo	Utica

The best dealer in your town has
GF products in stock

(Continued from page 98.)

the weight of a wall of the adjoining Schiller building and the remaining columns are supported on 60 foot piles with reinforced concrete cappings.

The alley in the rear is only 16 feet wide but has a large amount of traffic. On the Dearborn street side the excavation extends to the curb line which leaves only about 14 feet clearance between the retaining wall and the street cars. This necessitated rapid work in very limited space in constructing the retaining walls. On the alley side the retaining wall is about 100 feet long, 14 feet high and an average of about 2½ feet thick. Material was hauled in motor trucks and dumped in the narrow space along the side of Dearborn street. A permit was obtained to close the alley at four o'clock in the afternoon and promptly at that hour a one-third yard, "The Standard" low charging mixer was moved into the alley and set to discharge directly into the forms. The mixer was in operation within five minutes after being moved into position and at 11 o'clock the same evening the pouring of concrete was completed and the alley cleared. The construction of the retaining wall along Dearborn street was done in a similar manner and in equally rapid time.

The accompanying illustration shows the narrow space available for operating the mixer and how the portability of the mixer made possible its being easily and quickly set to discharge directly into the forms.

Wall Board Used by Government

The fact that wall board is being found an excellent material for Government cantonment work is attested to by recent large orders for Plastergon wall board placed by the United States Government with the Plastergon Wall Board Company, of Buffalo, N. Y.



Buckeye Vise Company in New Plant

J. W. Gaede, proprietor of the old Buckeye Saw Vise Company, now the Buckeye Manufacturing & Foundry Company, Cleveland, Ohio, paid us a visit a few days ago and told us of the rush time they are making rebuilding their plant. On August 2, fire completely destroyed their factory. In exactly one month it has been rebuilt of brick and very much enlarged to include a modern foundry. The firm name has been changed at the same time to take in the foundry side of the business which is expected to grow in volume and importance.



Ethyl Alcohol From Wood is Good

There is no reason for discriminating against ethyl alcohol made from wood in favor of that from grain or molasses, according to the Government chemists of the Forest Products Laboratory at Madison, Wis.

The prejudice against the use for some purposes of ethyl alcohol made from wood is probably accounted for, the experts say, by a confusion with methyl or "wood" alcohol, which is poisonous. Both products are derived from wood, but are radically different. The ethyl, or grain alcohol, is made by reducing the wood to sawdust, treating the sawdust with an acid to produce chemical sugars, and converting the fermentable sugars into alcohol by fermentation, as in the case of grain or molasses.

Will Your New Home Be 100% Efficient?

HOW much space will be devoted to bedrooms which are used only eight hours out of every twenty-four? MURPHY IN-A-DOR BEDS eliminate this waste by making these rooms serviceable every minute in the day.

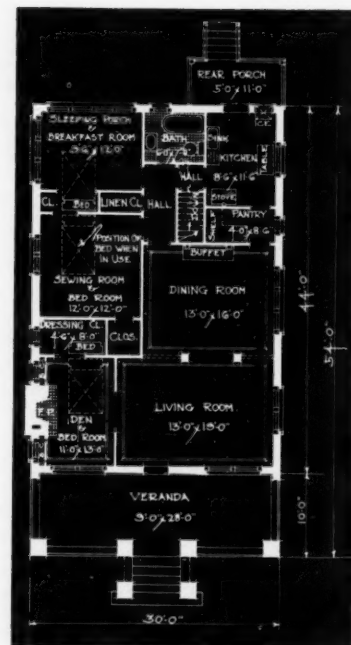
Study the accompanying plan for a moment. Here is a bungalow that contains only six rooms and was built for a six room price but it is just as efficient and comfortable as any eight room bungalow you ever saw. Two bedrooms have been actually eliminated by the MURPHY IN-A-DOR BED which is perfectly concealed during the day in an ordinary clothes closet behind a door only three feet wide, yet when night comes, in ten seconds time the bed can be swung out of the closet and lowered for use in the adjoining room. What would ordinarily be a front bedroom can be turned into a den or library during the day. The other bedroom can be used as a sewing room or children's playroom, and the sleeping porch is transformed into a sun parlor or breakfast room. The transformation is perfect because there is nothing to

denote the presence of a bed as the door that conceals it is just an ordinary stock door only three feet wide.

In this bungalow there are no extra bedrooms to heat, light, and take care of yet the family can be accommodated very comfortably and the unexpected guest can be taken care of on a moment's notice.

MURPHY BEDS are used universally not only in residences but in apartments, hotels, clubs, hospitals and sanitariums. In fact, wherever a bed is used a MURPHY IN-A-DOR BED is 100 per cent more efficient because it will double the use of any room in which it is installed.

This same idea of efficiency can be carried out in your new home and our engineers who have specialized in efficient floor arrangements will be glad to help you solve any particular problems you might have. This service is absolutely free as we are anxious to have our customers get the full benefit from the use of MURPHY IN-A-DOR BEDS. Address nearest office for complete information and descriptive booklet.



Notice how this six room house gives perfect eight room accommodations

Murphy Door Bed Company

Chicago, Ill.
830 Westminster Bldg.

Cleveland, Ohio
690 Leader News Bldg.

St. Louis, Mo.
460 Chemical Bldg.

Kansas City, Mo.
390 Glendale Bldg.

Tulsa, Okla.
13 East Fifth Street

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER



A World's Record in Building!

IN building army cantonments, naval quarters, aviation camps, supply bases, ships, boats and barges, the United States Government is shattering all precedents in emergency construction.

This stupendous war task is possible of accomplishment in such brief time only because the Government has availed itself of the services of the ablest structural designers; has assembled and utilized a mighty army of the most skillful mechanics, and has employed as the principal structural material the most serviceable, adaptable and workable of building materials—

Southern Pine

"The Wood of Service"

The utilization of hundreds of millions of feet of Southern Pine lumber and timbers, in preference to all other materials, is due to something more than the fact that Southern Pine is the most available and economical of high grade building woods—**It is a National testimonial to Southern Pine's supremacy in service qualities.**

There is a significant lesson in this for the builder of every type of structure in which wood may be employed.

Standard Specifications and Grading Rules for Southern Pine lumber and timbers, with a list of Southern Pine Association subscribers (manufacturers of guaranteed Southern Pine) will be mailed promptly on request.

Address Department C-1



Southern Pine Association

NEW ORLEANS, L.A.



"Beautiful Birch for Beautiful Woodwork"



Palace Appearance but Cottage Cost

"Beautiful **birch**" has an *expensive look*, but it is *not* an expensive hardwood to buy and use. **birch** offers a lot for the money. In addition to beauty and variety of grain, **birch** is extremely hard and takes a fine polish when rubbed down. Light in color, it permits of a wide variety of stained finishes from very light to very dark, and the hard, almost "dent-proof," close grain makes it an ideal base for white and ivory enamel. It is the all-'round money's worth wood.

The rich man's mansion or the public building have no monopoly on "Beautiful **birch**" for trim, doors and floors.

The poor man's modest home can have the same beautiful wood for trim, doors and floors.

Of course you know what it means to you to give your customers a fine looking job at low cost—it means people you can always refer to with pride.


So send for your copy of the handsomely illustrated **birch** book, and study every word in it. You will know **birch** then, and **birch** is a wood worth knowing through and through

*We will send with the book a set of "Beautiful **birch**" panels, in several finishes, including white enamel. Both book and panels are powerful contract clinchers. Write today.*



Northern Hemlock and
Hardwood Mfrs.' Ass'n.

201 F. R. A. Bldg.
Oshkosh, Wisconsin

CATALOGS BULLETINS & BOOKS RECEIVED

The following literature, dealing with subjects of interest to builders, is now being distributed:

"Beautiful Floors and How to Care for Them" is the title of a most interesting little booklet, 5 by 7 inches, 16 pages, which shows in a series of humorous sketches the tremendous wear which floors are expected to withstand and how floors may be made beautiful and durable by the proper use of the products of the Murphy Varnish Company, Newark, N. J.

Garage door equipments of the Wagner Manufacturing Company of Cedar Falls, Iowa, are fully illustrated and described in their catalog No. 16, a booklet of 32 pages, 6 by 9 inches.

A handy reference chisel book containing 32 pages, 3½ by 6 inches, is being distributed by the Peck, Stow & Wilcox Company of Southington, Conn., which, in addition to illustrating and describing their complete line of chisels, gouges and draw knives, gives general information valuable to the users of these tools.

The smaller Rex concrete mixers are covered in detail and the Rex pavers are taken up in a general way in Bulletin No. 77, 16 pages, 6 by 9 inches, of the Chain Belt Company, Wilwaukee, Wis. This bulletin introduces a new cover design which brings out strongly the company's aim—"Rex Mixers for Permanence in Concrete."

Patent woodworking machinery of J. A. Fay & Egan Company, Cincinnati, Ohio, is carefully described and pictured in their attractive loose-leaf catalog, 9 by 12 inches in size.

Pennsylvania Department of Labor and Industry issues a Monthly Bulletin at Harrisburg, Pa., which is devoted to the information of the public on a great variety of industrial questions.

Saw rigs of the light and heavy portable type, rip and swing cross-cut saw rigs manufactured by the Oshkosh Manufacturing Company, Oshkosh, Wis., are illustrated and described in their 20-page catalog, 7½ by 11 inches, of contractors' equipment.

"The Home Ventilator" patented pipeless furnaces of the Homer Furnace Company, Homer, Mich., is described and illustrated and a number of installations are shown in their 32-page catalog, 6 by 9 inches.

Novo engines and outfits are presented in Catalog 816, 80 pages, 6 by 9 inches, of the Novo Engine Company, Lansing, Mich. The equipment described and illustrated includes gas, gasoline and kerosene engines; pumping, hoisting and sawing outfits.

"The Interlocker," published by the Denison Interlocking Tile Corporation, Guardian Bldg., Cleveland, Ohio, for March, has a large number of photographic illustrations showing homes of well known people.

Ambler asbestos shingles (Century Brand) are covered in an interesting and instructive way in Catalog S, 56

(Continued to page 104.)



SEE THESE SPLENDID LOGS!

ARKANSAS SOFT PINE

Of course.

Look at those thick sap sections—No other pine produces such heavy percentages of Thick Sap. This is the stuff that our famous

Satin-Like Interior-Trim

comes from. No rosin—no sugar—no discoloration of the wood-work's finished surface. Just fine, close grain, tough fibre, soft texture and beautiful figure.

The extreme difference between this wood and so-called "Georgia Pine" is explicitly explained in our authentic booklet on painting and finishing. Copy will be sent on request. Write today.

*Arkansas Soft Pine is Trade Marked and sold by
dealers East of the Rockies*

ARKANSAS SOFT
1220 Bank of
Little Rock,



PINE BUREAU
Commerce Bldg.
Arkansas

(Continued from page 102.)

pages, 5½ by 8½ inches, of Keasbey & Mattison Company, Ambler, Pa.

Ambler asbestos corrugated roofing applied to wood or steel construction is treated with the aid of illustrations and tables in the 1917 Engineers' Data Sheets being distributed by Keasbey & Mattison Company, Ambler, Pa.

"MFMA Service," a bulletin issued monthly for architects, contractors, and lumber dealers by the Maple Flooring Manufacturers' Association, 801 Stock Exchange Bldg., Chicago, Ill., contains timely suggestions and helpful information.

Sliding door hardware for parallel, accordion and flush door partitions is considered in Catalog No. 17, of Richards-Wilcox Manufacturing Co., Aurora, Ill. The catalog contains 32 pages, 7 by 10 inches.

Concrete Highway Magazine for September, published by Portland Cement Association, 111 West Washington St., Chicago, Ill., is fully up to the standard set by former issues in the matter of useful information and good illustrations.



How to Build a Poultry House

(Continued from page 73.)

to place the floor on a foundation of cinders, gravel, or broken stone if there is any danger of dampness in the soil. This foundation should be about 4 inches deep and tamped firmly into place.

"The concrete for the floor slab may be made of one part Portland cement, two parts clean sand, and four parts of broken stone or screened gravel. The

finishing coat may be of one part Portland cement and two parts clean sand.

"Wood floors are used when the level of the floor in the house is from 1 to 3 feet above the ground surface. This allows dogs or cats to get underneath to prevent the harboring of rats, and also allows free circulation of air to keep the wood from rotting. In general, a tight board floor, well oiled to keep down the dust, and well covered with straw, is the most satisfactory for ordinary use. These floors are made of matched flooring and are laid double in cold climates. The lower layer of boards is laid diagonally across the building to strengthen the floor and brace the structure. The top boards are laid across the diagonal boards and make a tight, warm floor. Floor joists may be of 2 by 4, 2 by 6, or 2 by 8-inch stock, depending upon the load to be carried. They should be spaced from 16 to 24 inches on centers. Three-quarter-inch mesh wire laid under wood or dirt floors prevents rats from entering thru the floor.

"A dirt floor is satisfactory in small houses located on light, sandy, well-drained soils. Such floors should be from 2 to 6 inches higher than the outside ground level, and it is advisable to renew them with a clean layer of top soil each year. A layer of fresh sand or fine gravel is recommended for a surface coat.

"The partition shown in Fig. 4C may be made solid for a distance of 3 feet up from the floor and of wire

(Continued to page 106.)

**Plan
Service
Free**



J. E. Porter Company
Established 1868
Sold by
Leading Dealers
Everywhere



**Satisfaction
Guaranteed
To All**

Write for Catalogs and Special Dealer Proposition on PORTER'S Sanitary Barn Equipment

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Let us send you our Catalogs—No. 62 on Barn Equipment and No. 61 on Haying Tools—at once, with complete illustrations of the PORTER LINE, including Stalls, Stanchions, Garage and Barn Door Hangers, Litter Carriers, Partitions, Sanitary Drinking Bowls, Galvanized Steel Mangers, Pens, Milk Can Carriers, Feed Trucks, All Barn Fixtures, Ventilators, Haying Tools, etc., etc. Sent FREE.

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ENTRANCE PORCH
THE TREADWELL HOUSE
at Portsmouth, N. H.
Built in 1808

JUST another example of the ability to hold its shape under exposure to trying weather conditions, the long life and the wonderful resistance to decay of

WHITE PINE

Every carpenter knows that no other wood withstands the wear and tear of weather so successfully as White Pine—that White Pine stays where you put it, without warping, splitting, checking, rotting or opening at the joints.

If your lumber dealers are at any time unable to furnish White Pine, we should appreciate the opportunity of being helpful to you in getting it.

*Address WHITE PINE BUREAU,
2035 Merchants Bank Building, St. Paul, Minn.*

Representing
The Northern Pine Manufacturers'
Association of Minnesota, Wisconsin
and Michigan, and The Associated
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Make One Job Sell Another

A certain contractor has been using Curtis Woodwork for thirty years or more. He always recommends it and if he feels that he is not going to get a certain job that he wants, he takes the prospect out to see a house that he built thirty years ago and in which he used

CURTIS
WOODWORK
"The Permanent Furniture for Your Home"

That trip generally lands the job.

He is a prosperous contractor and he says his reputation was made the day he used **CURTIS** Woodwork in that house, thirty years ago.

CURTIS Woodwork has given him more than a reputation for building well. Its finish when it leaves the mill, its on-time delivery, its easy workability, cut labor costs and time loss for him.

If you are not fully acquainted with **CURTIS** Woodwork and Curtis Ideals, talk with your dealer about us. Write us, too, in the interest of better built homes for your customers and more business for yourself.

THE CURTIS COMPANIES, SERVICE BUREAU
1640-1740 S. Second Street, Clinton, Iowa

Manufacturing and Distributing Plants at
Clinton, Iowa — Lincoln, Neb. — Minneapolis — Wausau, Wis. — Chicago —
Oklahoma City — Sioux City, Iowa — Detroit — Topeka, Kan. — Dayton, Ohio
Eastern Offices at Pittsburgh and Washington

The makers of **CURTIS** Woodwork guarantee complete satisfaction to its users.
"We're not satisfied unless you are."

(Continued from page 104.)

mesh thruout the remainder of the height. This allows a free circulation of air thru the building.

"The sidewalls consist of 2 by 4 or 2 by 6-inch stock spaced from 2 to 4 feet apart on the rear walls and ends of the building. The spacing on the front is made to correspond to the size of the door or windows located on that side. For small houses it is more economical to place the boarding vertical on the side walls instead of horizontal, since only a few studs with cross ties will be needed.

"Sills, if used, may be of 2 by 4 or 2 by 6 or 4 by 4-inch stock. In Fig. 4B, they could rest directly on the concrete walls and be held in place by bolts bedded in the concrete. It is advisable to give all wood surfaces which rest on concrete two brush coats of creosote oil to prevent decay from the dampness in the concrete. Metal studding sockets were used in this case to do away with the need of sills.

"Plates may be of same stock as sills. In the case shown, the plates are of double 2 by 4-inch stock.

"The walls are sheathed both inside and outside in the house shown. If desired, the inside sheathing may be omitted and the outside covered with clapboards, shingles, or siding. It is advisable to place a layer of sheathing paper on walls which are to be shingled. When the siding is placed in a vertical direction, the boards may be 10 or 12 inches in width with the cracks covered by battens 2 or 3 inches wide and 1 inch thick nailed to the boards. It is said that ordinary matched boards 1 inch in thickness and not over 6 inches wide, make a very satisfactory wall covering if kept painted.

"The bottom board on the wall should extend into the ground to make a tight joint, and the spaces at the eaves should be filled in between the rafters. The sheathing should break joints across the building to provide strength in the wall. The siding should be laid from the bottom of the wall and working upward.

"The roof rafters are of 2 by 4-inch stock in the building shown in Fig. 4B. If the span of rafter is not over 12 to 14 feet, this size will be sufficient when the rafters are spaced 2 feet apart on centers. If there is danger of heavy snow load, or if the span is larger than named above, it is better to use 2 by 6-inch rafters or a purlin. The purlin may be a piece of 2 by 6 or 2 by 8-inch stock set on edge and located lengthwise of the building halfway between the front and back walls. This serves as a support for the ends of the rafters which reach from wall to purlin. While the illustration does not show a ridge board between the ends of the rafters at the ridge, it is advisable to use one on a long building to keep the ridge straight. The 1 by 6-inch ties or collar beams connect and strengthen the front and rear rafters.

"The roof may be sheathed and covered with building paper on which is placed a layer of wood shingles or prepared roofing. Often a three-ply roofing paper

(Continued to page 108.)



Cornell-Wood-Board

CONTRACTORS and Builders who have used and are using Cornell-Wood-Board find that it is by far the most satisfactory wall-board to both their customers and themselves. Beside that it is more easily applied and handled than any other finishing material for walls, ceilings or partitions.

There are great possibilities in the sale and application of Cornell-Wood-Board. It is more economical than plaster. It is less trouble to apply and there are innumerable panel designs than can be made with Cornell-Wood-Board.

Then, too, there are several distinctive features in Cornell-Wood-Board not found in other materials of this nature.

The most important is that it is heavily sized throughout, each fibre being subjected to a special treatment in the process of manufacture. This treatment results in a greater degree of satisfaction than has been given by any other board. It is stronger, stiffer and more moisture resistant than any other. It takes any kind of paint or kalsomine perfectly.

Try Cornell-Wood-Board on your next job

Our Department of design will draw panel suggestions with cost estimates if you will send dimension sketches or blueprints. This service obligates you in no way.

Cornell Wood Products Co.

C. O. FRISBIE, President

173-175 Jackson Blvd.

Chicago

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Dept. T3, CHICAGO

Please send me sample and complete information—or send Panel Suggestions as per dimensions enclosed. I am placed under no obligation by this service.

Name

Address

(Continued from page 106.)

is used as a covering in the place of shingles and is said to give good service. This paper may be bought in rolls of 100 square feet and can be used on roofs which have a slope of more than 1 inch per foot. The sheathing laid on such a roof should be planed on the side which is to take the paper.

"Figures 4D and 4E show details of construction of nests and roosts which have been found to give good service. While the dimensions are given for the roosts, the drawing of the nests is self explanatory. They should be from 12 to 14 inches square and 12 to 16 inches high. The material is 1-inch stock."



Winter Stucco Work

(Continued from page 49.)

Furthermore, as this kind of work exposes large expanses of surface to existing temperatures, no practical means has been devised that will offer adequate or certain protection. Because of the fact that the loss of one job by frost will entirely dissipate the profits on from eight to ten jobs, the risk alone of losing plaster or stucco work in winter time is directly responsible



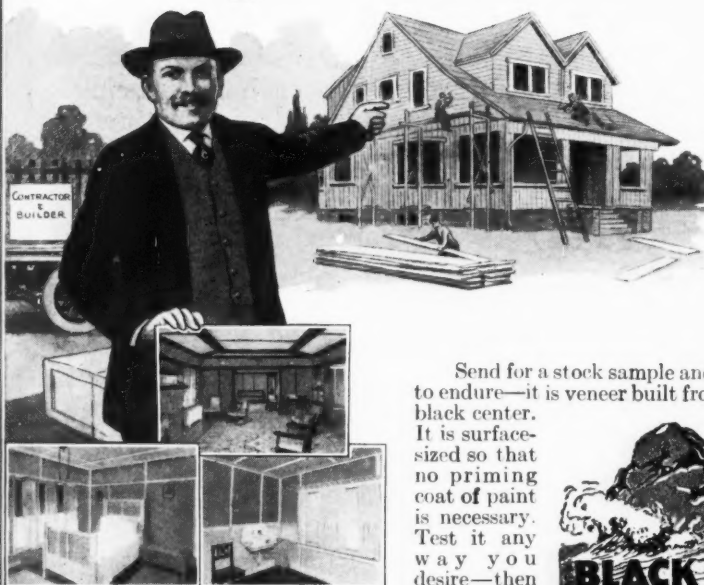
The Magnesite Stucco Fellows Keep Busy Long After All the Rest Have Laid Up for the Winter.

for the discontinuance of millions of dollars worth of building every season that otherwise would have been carried forward if it were definitely known that damage to these parts of the work could be positively avoided.

However, necessity being the mother of invention, this obstacle to winter building has been completely removed by the perseverance of American manufacturers who are now producing and distributing in large

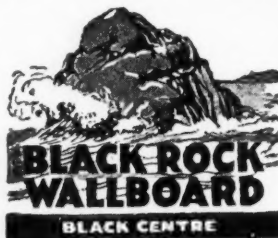
(Continued to page 110.)

"Black Rock Wallboard got me that contract"



Black Rock Wallboard Co.
1510 Ontario Pl., Black Rock, N. Y.

Send for a stock sample and see for yourself how Black Rock Wallboard is built to endure—it is veneer built from specially selected fibres with a moisture-repellent black center. It is surface-sized so that no priming coat of paint is necessary. Test it any way you desire—then you will use it on your next job.



"When I built a bungalow for the brother of the owner of that new house, we used Black Rock Wallboard to finish all the rooms. Because it looked so well and was so thoroughly satisfactory, I had the inside track on the contract for his brother's new home."

A builder who uses Black Rock Wallboard may safely count on its bringing him permanent customers and new business—just as surely as a poor job may be counted on to hurt his reputation. Because Black Rock Wallboard handles like lumber, never cracks, warps nor bulges—it is coming into wide use, not only in houses but in factory and office buildings where speed of construction and pleasant appearance are necessary.

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The Black Rock Wallboard Co.,
1510 Ontario Pl., Black Rock, N. Y.

Please send me regular sample of Black Rock Wallboard and booklet showing Black Rock jobs.

Signed..... (your name)

..... (your address)

BEAVER BOARD

FOR BETTER WALLS & CEILINGS

Beaver Board Work is Indoor Work

Clean, pleasant, profitable, inside work—that's Beaver Boarding. Time lost during bad weather reduces the income of contractor, builder and carpenter.

But while the rain and zero weather are stopping other work, the Beaver Board job is bringing in a day's pay. Then, too, it's the kind of work that makes satisfied customers, customers who are pleased because they appreciate quality.

Beaver Board

Beaver Board is the modern wall and ceiling material for new buildings and repairing. More sanitary than lath and plaster, warmer in winter and cooler in summer, moisture-proof, permanent, satisfying. Easier to apply than other materials and, once up, it stays up.

Used in the construction of new rooms and in repairing old ones—just the thing for big ceilings. Homes, offices, factories, clubs, stores and churches—all constitute a field for profitable Beaver Board jobs.

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Every carpenter and contractor should know about the splendid service which the Beaver Board Companies are prepared to render to their friends in the building trade. Write today for complete information.

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Branches in Boston, New York, Baltimore, Cleveland,
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Manufacturers also of Beaver Greenboard and Beaver Blackboard
Distributors in principal cities. Dealers everywhere.



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sults unless this
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Work Comes to the Builder Who Uses

MEDUSA
WATERPROOFING
PATENTED



HUNDREDS of building contractors have added to their reputations and have been able to trace greatly increased business by the use of Medusa Waterproofing.

The builder who knows Medusa Waterproofing is willing to undertake and guarantee jobs that other builders are afraid of.

One difficult job of waterproofing successfully accomplished with Medusa is a continuing advertisement of the builder.

Medusa Waterproofing is made in two forms—paste and powder. It is the original integral waterproofing and has been in use for ten years. It does not affect the strength, color or setting of cement and it gives permanent water and damp-proofing.

Free To Builders

Two handy little booklets—"Proportioning and Mixing Concrete," and "Medusa Waterproofing."

If you are located in a rural community and do work among farmers, ask also for Medusa Waterproofing on the Farm.

The Sandusky Cement Co.
Dept. L Cleveland, Ohio

(Continued from page 108.)

quantities interior plaster and exterior stucco that will not freeze when exposed to temperatures 20 degrees below zero.

This frost proof plaster is magnesite plaster. It is also extensively used for seamless composition flooring.

Magnesite composition was discovered by a European scientist some fifty years ago and experimental work has been carried on over a long period of years in European countries. This served to bring about many improvements as well as to eliminate such of the difficulties as were first encountered in its various uses. At the same time its many remarkable properties were forcibly demonstrated under every known weather and working condition.

The unusual combination of valuable characteristics possessed by this great building material attracted the attention of American manufacturers who have since created and developed this industry into one of large proportions. The use of magnesite plaster is increasing at an unprecedented rate not only in the tonnage consumed but also for many different purposes.

Magnesite stucco is not mixed with water as are all other plasters and stuccoes, but instead a dense non-inflammable chemical liquid is used. This chemical liquid prevents the material from freezing even in below zero temperatures. Consequently, stucco work and plaster may be carried on with absolute safety with magnesite materials at all times during the winter or summer alike.

Both magnesite and the chloride solution of which this plastic material is composed are highly resistive to extremely high temperatures of heat and are therefore, thoroly fireproof in every sense of the word.

The setting up of magnesite composition is brought about by a chemical reaction of the powder and liquid products, causing a stringent contraction of all particles of which the material is composed, resulting in an exceedingly dense, non-porous coating which water cannot permeate.

In addition to use for new construction, magnesite stucco is an important factor in developing and increasing activity in the somewhat recent movement to remodel and architecturally rehabilitate old properties by overcoating them with stucco. The fact that it may be used alike over wood, brick, tile or concrete surfaces, all on the same building if desirable, has won the warm approbation of contractors everywhere, for this opens up an additional and profitable field of operation, the extent of which is unlimited.

It will be remunerative to contractors to plan a definite fall campaign to secure remodeling and overcoating work to be carried on during winter months, which may be done entirely free from risk with this frost-proof stucco, as the occupants of buildings on which this work is applied need not be disturbed in the least.

KELLASTONE

IMPERISHABLE STUCCO



Reduce Building Costs By Using

KELLASTONE Magnesite Stucco

Cut the high cost of building materials, yet improve the quality by using Kellastone.

Build for permanence yet at the same time increase the beauty—use Kellastone.

Build a home that is FIREPROOF and WATERPROOF—no other stucco than Kellastone will accomplish this.

Kellastone Absolutely Will Not Freeze

If you are interested in learning about one of the greatest and most wonderful building materials in existence, the only stuccoing material in creation that may be termed **CRACK FREE**—

WRITE FOR BOOKLET No. 25, which tells about Kellastone—a remarkable MAGNESITE STUCCO.

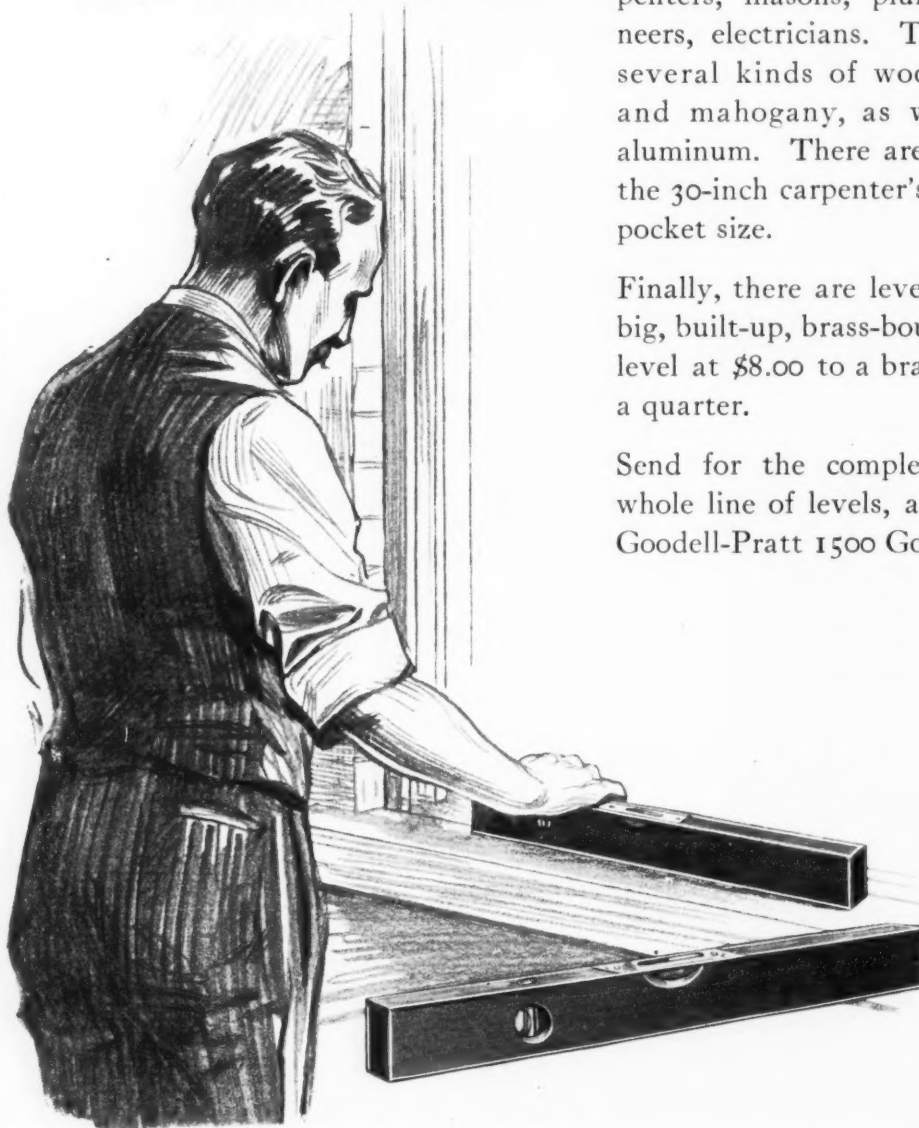
THE NATIONAL KELLASTONE CO.
1315 Mallers Bldg. Chicago, Ill.

GOODELL PRATT

1500 GOOD TOOLS

Levels and Lathes

Wood, Iron, Aluminum Levels



There is a Goodell-Pratt (Stratton) level for every purpose and every pocket; levels for carpenters, masons, plumbers, machinists, engineers, electricians. There are levels made of several kinds of wood, including rosewood and mahogany, as well as iron, brass, and aluminum. There are levels of all sizes, from the 30-inch carpenter's model down to a 2-inch pocket size.

Finally, there are levels of all prices, from the big, built-up, brass-bound, rosewood carpenter's level at \$8.00 to a brass or iron pocket level at a quarter.

Send for the complete Catalog and see the whole line of levels, as well as the rest of the Goodell-Pratt 1500 Good Tools.

GOODELL PRATT

1500 GOOD TOOLS

for the Carpenter

For making models, patterns, small parts, etc., this Bench Lathe fills the bill at relatively small expense. It is equally suitable for the workshop, the laboratory and the trade school. It is well made, of good materials, excellent design, and sufficiently accurate for all ordinary purposes.

This lathe will take work up to 12 inches in length, with a swing of 7 inches. The tail stock has both screw and lever feed; the spindle is hollow, with a No. 1 Morse Taper Socket and a $\frac{3}{8}$ -inch hole clear through. It is furnished complete as shown, with a saw arbor and a three-jawed chuck in addition.

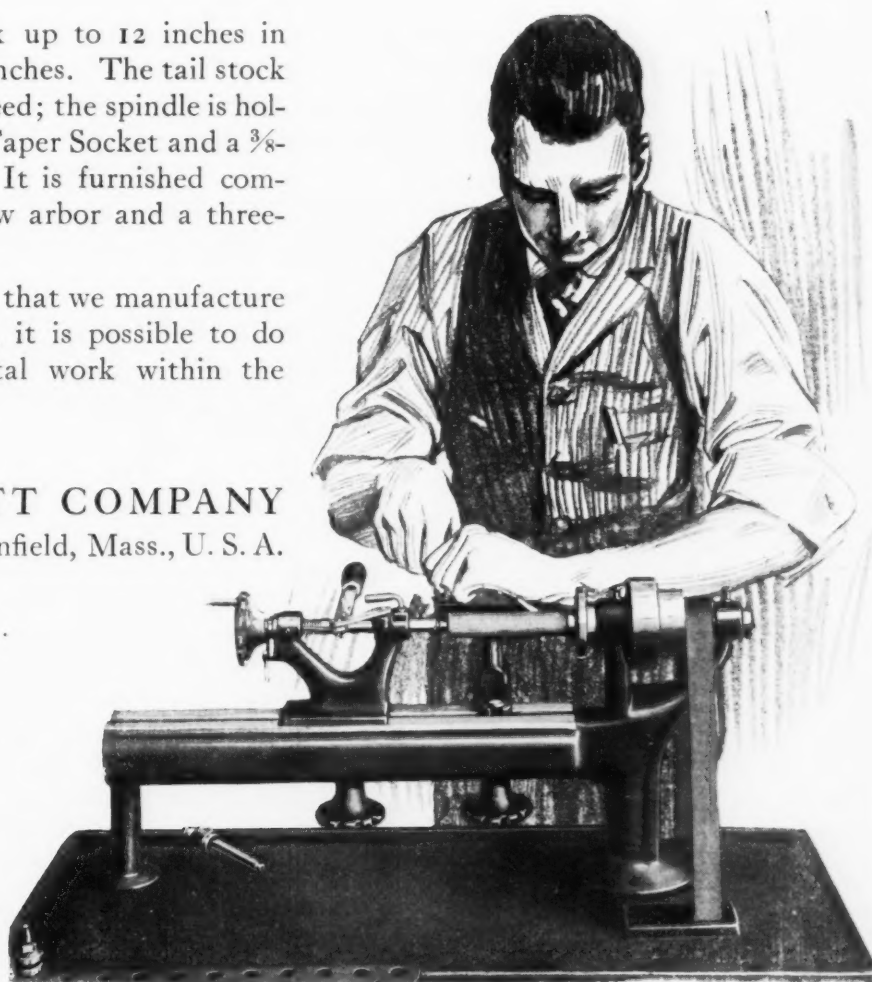
With various attachments that we manufacture or which you may make, it is possible to do almost any wood or metal work within the capacity of the machine.

GOODELL-PRATT COMPANY

Toolsmiths

Greenfield, Mass., U. S. A.

Bench Lathe
No. 125





"That is just what our drivers need this winter"

Giving full protection in stormy or cold weather, the ALL-YEAR Cab increases your driver's efficiency—discourages speeding—diminishes accidents—and keeps your trucks in operation the year round, regardless of weather.

In its summer form it is a cool, open housing—in winter, the ALL-YEAR Cab is quickly changed into a warm, dry, closed, weather-proof Cab by adding the winter attachment.

KISSEL TRUCKS

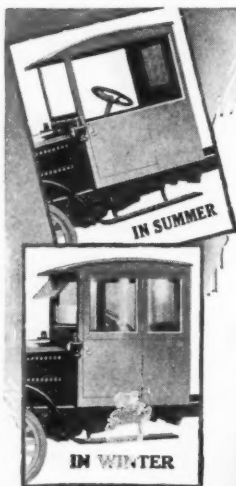
Five new sizes—a truck for every purpose

The Kissel combination of perfected wormdrive rear axle, superior front axle, sturdy Kissel built power-plant, double external brakes and special heat-treated frame, insures to owners in the carpentering and building trade business, long wear—

dependable performance — economical maintenance and high tire and gasoline mileage.

Whatever size truck your business requires, you are sure to find it in the new Kissel Truck line.

See your Kissel dealer today or write us for literature on the new Kissel Trucks and the ALL-YEAR Cab.



Kissel Motor Car Company
HARTFORD, WIS., U. S. A.



"I Run My Shop Summer and Winter at a Profit"

(Continued from page 66.)

26-inch band saw placed on a solid concrete base. No. 7 is a moulder which is very handy for forming edges on cabinet work. Combined machine No. 8 I now use as a footpower machine for light work. I grind my large edge tools on machine No. 9. Machine No. 10 is a wood lathe; No. 13 is a grinder, for which I have three abrasive wheels, the finest one being an oil stone; No. 21 is a brass cylinder kitchen pump connected with the cistern, which makes it possible to get water for the engine without going out of the shop for it; No. 25 is a saw clamp of my own make, which is long enough to hold the average saw for filing along its entire length at one setting.

My 4-horsepower gasoline engine, No. 12, is kept under cover when not in use. It is connected with a 50-gallon storage tank, placed underground of the shop. The engine is fitted with a friction clutch pulley, which allows me to start the line shaft slowly. This pulley is wide enough to run the belts to shafts No. 28 and 29 at the same time, but I seldom run both at once. As soon as I can get all-day electric service, I expect to install an electric motor, No. 27. The walls of my shop are covered with hand tools, clamps, cutter heads, guides and other tools.

Cabinet No. 16 contains a complete supply of nails and other hardware. Above this cabinet I have a book case in which I keep a complete file of the AMERICAN BUILDER and other building journals. As I am a Charter Member of the AMERICAN BUILDER, I have every magazine from April, 1905, up to the present time, each year's books in a separate compartment. In reading these journals, I record in a ledger, alphabetically, every article which I think will be of use to me or someone else at some time. When a question comes up, I look in this ledger to see if I have read anything in the journals about it, and in case I have something recorded, it requires only a moment to find the article.

I have several small cases located at various places about the shop where they are most needed. I have made a very fine screw cabinet, No. 22, which is shown in one of the photographs. I make it a policy to exhibit my goods to the best advantage; for instance, I have built a model door which I use to exhibit my screen doors and various articles of hardware. I have a similar window and I keep my stock of chair seats and other such articles where they will show to the best advantage.

It is my policy to keep everything in its proper place. The shavings are kept swept out of the shop, the windows are kept clean. I have a duster which is used to keep the machines clean, because I find that what little time it takes to maintain order is more than paid back in the saving of time otherwise spent in searching for misplaced tools, dropped in the shavings.

CARPENTERS Here Is An OPPORTUNITY

We want a capable representative in every locality. You are peculiarly fitted for this opportunity. You can make a big success of this business and a tremendous profit in proportion to the time you put in on it. **The possibilities are unlimited.** This is a business of real, hard cash opportunity. No experience is required. No expense. No risk. No competition. Just follow easy instructions—work all or spare time—handle the cash yourself and take a profit that will make you sit up and take notice. One carpenter sold nine closets in three hours—**profit \$72.00 cash. Act today.** Investigate. Send for complete free information. Risk a stamp for a man's size opportunity—and take this profit for a new bank account.

Amazing New Home Invention The Shafer Ventilated Chemical Indoor Closet

No plumbing—no waterworks—no cesspool. Banishes the outdoor closet. Revolutionizes living conditions in country and village homes. Solves the one humiliating and perplexing country home problem. An imperative necessity to health, comfort and convenience. Perfected for his own use after years of experimental work by a heating and ventilating engineer. **Tested in over 2000 homes for three years.** Now offered to the homes of the world at a nominal price. Gives positive guaranteed satisfaction. Demanded everywhere. A sale at every home. Warranted for ten years. **Absolutely odorless, sanitary, germ proof.** Endorsed by physicians' health authorities, schools and thousands of homes. Every day we receive letters such as the following: "I have observed many of them in highly successful operation. In my private practice I unhesitatingly and continually recommend them. **I wish these closets were in every home.**"—Dr. Thomas H. Turner (Health Officer). "I recommend The Shafer Closet in every home as a necessity and as a duty to public health."—Dr. D. B. Henry. "It is a complete success—a splendid invention of great practical use."—O. M. Misenar, (Supt. of Schools). "Every home that would put one in and use it for a week would never let it get out of the house."—Arthur B. Ransom (Farmer)

\$112 Cash Profit in One Day

That's the record of one man (a plumber) in a single day. The same man has never sold less than five Closets for any half day's work. Every home a prospect. Every sale makes dollars—not pennies—of cash profit. **Liberal commission to agents.** Biggest money-making opportunity ever offered, because it is an invention that is positively needed in every home not supplied with water-works and sewage system. Listen: L. J. Dulle, Mo., (Insurance Agent) says: "This is an easy thing to sell. **Everybody you go to and talk Closet to has another prospect for you.**" C. A. Carter, Ill., (former Grain Dealer) says: "I was out today **two hours and sold three.** Find enclosed check. **Ship me twelve at once.**" W. H. Bartholomew, Wash., (Farmer) says: "Closets arrived yesterday. **Sold one in 15 minutes.**" Seymour L. Vance, N. Y., (Carpenter) says: "I sold nine the first three hours." W. D. Belknap, Ohio (former Real Estate Agent) wired: "Sold ten Closets today—send twelve by express." Do you want more proof of success and profit? Send today for free illustrated book showing pictures of homes and rooms containing this wonderful device, complete description, color plates, letters of endorsement from health authorities, doctors, editors and scores of users with names and addresses. This book is **free**—send for it today—investigate.

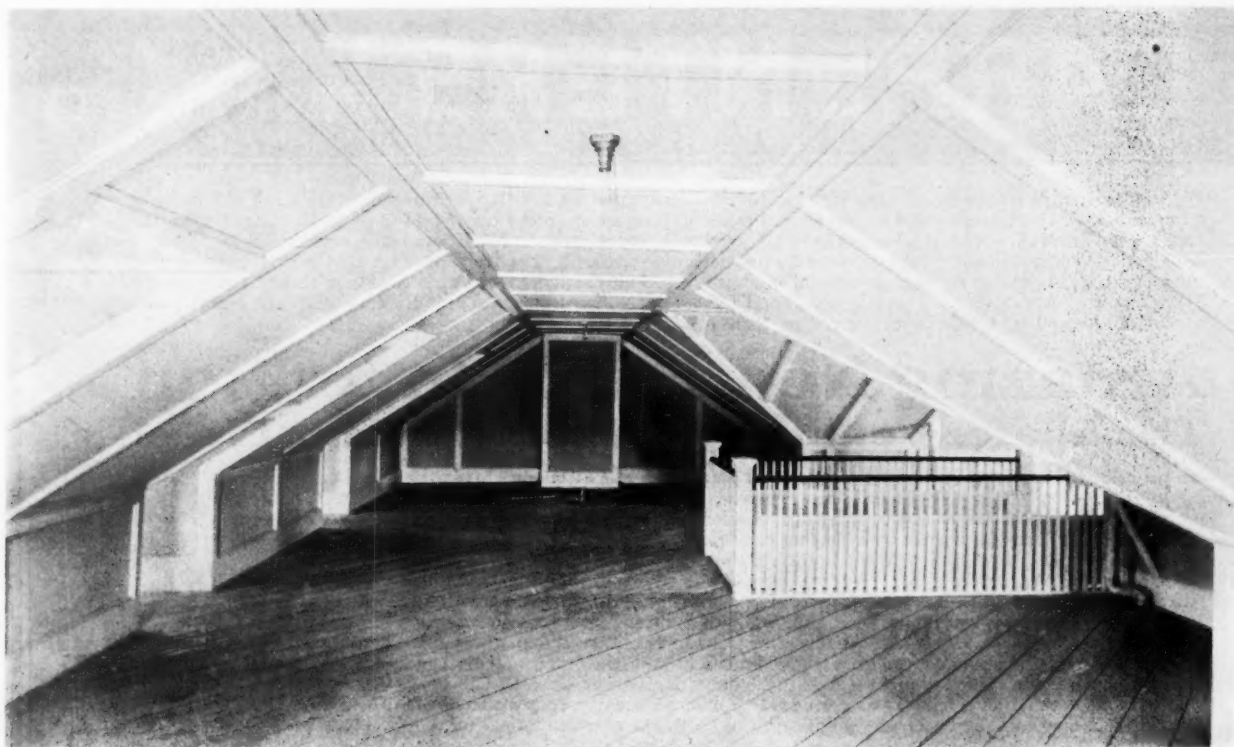
SEND NO MONEY— AGENTS' OUTFIT FREE

Start right now. Order book, business cards and prospectus with exclusive agency contract **FREE.** Co-operation, advertising, assistance. **Business supplies capital.** We teach you how to make amazing success. Permanent business—all or spare time. Secure your county under exclusive agency contract now—**free.** Don't delay. Write us a letter or postal card, giving your name, address, and the name of your county, and mail it today. No previous experience necessary or required. You can make this success. **Your profits will start the first day.** Make \$40 a week to \$5000 a year commencing **NOW.** Risk a stamp to get complete, proved, reliable free information. **This is your part—DO IT RIGHT NOW.**



Price
Complete
Only
\$17.50

The Shafer Mfg. Co., 485 Colton Building
TOLEDO, OHIO



Even if the Attic Space Is Low, Finish It Off Nicely with Wallboard and the Expense Will Justify Itself.

(Continued from page 47.)

To line up a fair amount of wallboard work does require some solicitation, but it by no means demands that the contractor should be an expert salesman. The

property owner readily agrees that his cracked and falling walls should be permanently repaired, that the larger rooms might profitably be cut in two or parti-

(Continued to page 118.)



Simonds Steel Saws

and the U.S. Steel Destroyers
Are Invincible.

There is a striking comparison between Uncle Sam's big steel torpedo boats and Simonds popular \$3.00 Blue Ribbon Saw.

Both stand for Strength and Advancement

Simonds Saws always give the proper satisfaction to a true mechanic. They go through a board fast and true, and do not tire one.

Simonds Saws hang and feel just right and always stay sharp.

Once get a Simonds and you will appreciate why they are universally used.

Let us send you our Carpenters' Guide, a book full of practical, interesting information.

Simonds Mfg. Company

"The Saw Makers"---Established 1832
FITCHBURG, MASS.

Five Factories **Eleven Branches**

Safety First



A Corbin cylinder lock upon a door means safety to the rooms behind it—for no one can enter except the person who holds a key fitted to it. The Corbin master keyed cylinder gives the most flexible and satisfactory system of selective key changes ever devised. Any dealer in Corbin hardware can tell you all about it.

THE CARPENTER'S KEY, a little device which assists in attaching Corbin cylinders should be on every carpenter's key ring. *Mailed upon request.*

P. & F. CORBIN

The American Hardware Corporation Successor

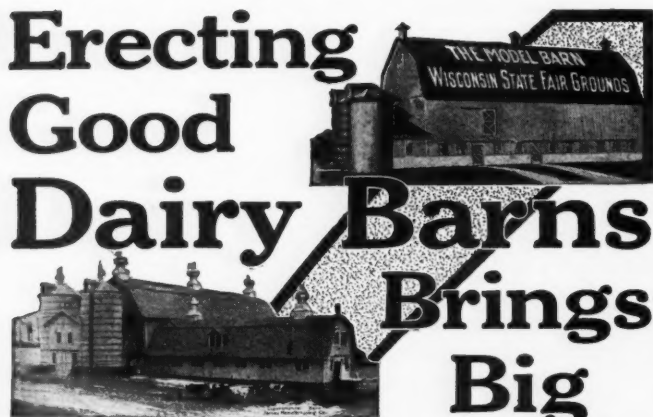
NEW BRITAIN, CONN.

NEW YORK

CHICAGO

PHILADELPHIA

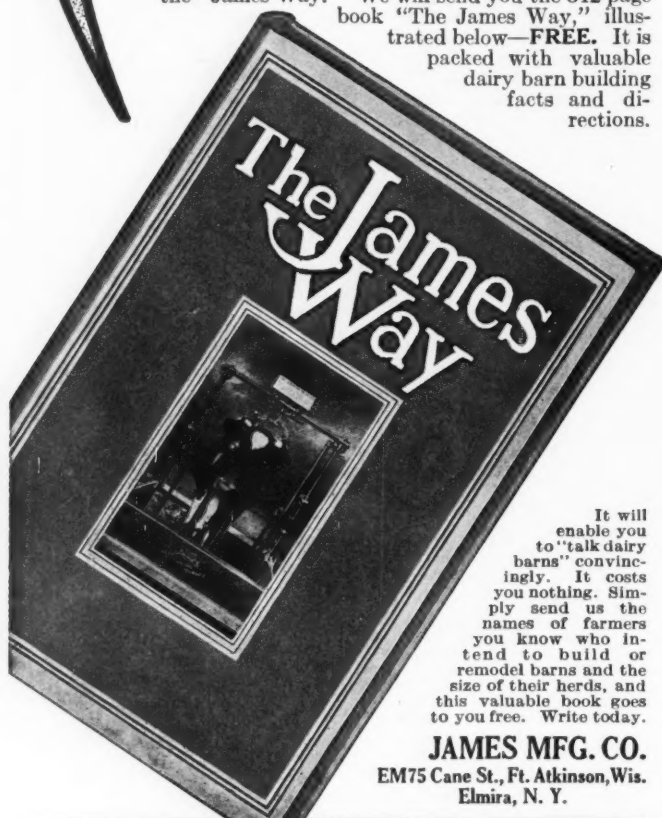
Erecting Good Dairy Barns Brings Big Profits To Builders



Dairy barns so built and equipped that they make for more milk, better milk, cleaner milk—and less work for the dairyman, are in big demand. Dairy men all through the land are either erecting new and better barns or are remodeling their old ones.

James Barns and James Equipment are known to these dairymen. We advertise heavily in farm and dairy papers.

We will be glad to cooperate with you and help you land contracts for building barns in your vicinity the "James Way." We will send you the 312 page book "The James Way," illustrated below—**FREE**. It is packed with valuable dairy barn building facts and directions.



It will enable you to "talk dairy barns" convincingly. It costs you nothing. Simply send us the names of farmers you know who intend to build or remodel barns and the size of their herds, and this valuable book goes to you free. Write today.

JAMES MFG. CO.
EM75 Cane St., Ft. Atkinson, Wis.
Elmira, N. Y.



Bedroom in a Clifton, N. J., Residence.

(Continued from page 115.)

tioned, that it would pay to make a third floor out of the empty attic.

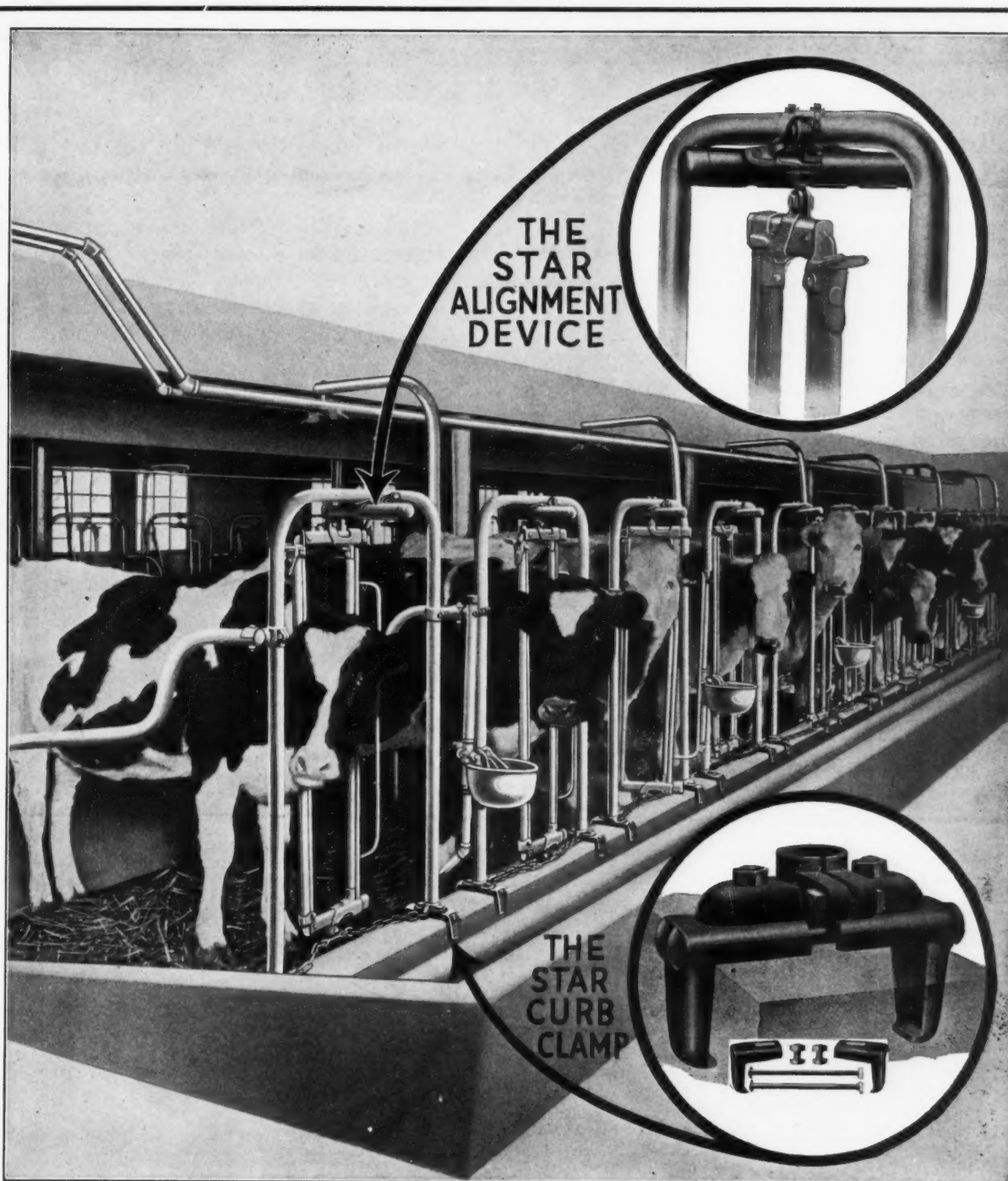
The cost is reasonable, quite reasonable in fact, when the attractive and lasting results are considered. And the absence of dirt or annoyance does away with whatever other objections might be presented. When it comes to laying out the job and figuring on the paneling and decorative trim, the contractor will find that his wallboard dealer in most cases can arrange to provide him with exact plans, estimates and designs. One day diligently spent by a carpenter or contractor looking up wallboard jobs often means weeks of steady work at the very time it is most needed.

A Bedroom Wardrobe

(Continued from page 70.)

naturally. Back of the seat there is a triple casement window, with the simplest kind of casings. This plainness makes the leaded glass in the sash show up to better advantage. In fact there is nothing in the entire design that calls for complicated millwork or labor. The crown moulding is something of a variation from what is so commonly used. The drawer faces are sunk into panels instead of projecting, and the slight ornamentation at the corners consists merely of 1/4-inch veneer cut to the shape shown, and glued or bradded over the plain facing. This same treatment is used for the end supports of the seats. A simple corner bracket under the seat, cut on straight lines, is in keeping with the style.

The plain wall at the ends of the seat is faced with V-beaded stock, and if the size of the room warrants the use of less glass area in the window a very attractive effect is obtained by reducing the window height and placing the sill on a level with the crown mould. The V-beaded stock is then continued around.



The Two Features That Cinch The Sale

You know that the nearer you come to carrying exactly what your customers want, the bigger your sales are bound to be.

The two big, new, added features on STAR Barn Equipment have been in use long enough to demonstrate that they "cinch the sale" every time our Dealers show them.

The STAR ALIGNMENT DEVICE *instantly*—by the simple turn of a lever—lengthens or shortens the cow bed. Takes about the same time that it does to lock a stanchion. Compare this exclusive STAR feature with the slow, laborious methods used on other stalls.

Then there is the STAR CURB CLAMP—by its aid the barn owner can set a stall in sixty seconds. No templates or anchor setting—the curb can be finished up with the rest of the concrete work.

On top of these new and exclusive features, STAR BARN EQUIPMENT has more practical advantages to offer than any other equipment made. The Unit Stall construction—the extra strong Giant STAR Stanchion with its One Hand Lock, Wood Lining and Easy Adjustment—but what's the use of trying to tell it all here?

Write for a free copy of the "How Book" for contractors, and send us a list of the farmers who are going to build or remodel barns in your vicinity. Write today—

HUNT, HELM, FERRIS & COMPANY

Main Office and Factory, 61 Hunt St., Harvard, Ill.
Eastern Branch, Industrial Bldg., Albany, New York

The STAR Alignment Device

Our new feature—the STAR Alignment Device—is a revolutionary improvement in stall construction.

By its aid you can *instantly* with the simple turn of a lever lengthen or shorten the cow bed.

And it takes no longer to make the adjustment than it does to lock a Stanchion.

This feature exclusive with the STAR.

You may, if desired, equip with plain STAR Stalls and add the Alignment Device later, when you are ready.

The STAR Curb Clamp

This exclusive STAR feature is pronounced by barn owners everywhere, the greatest single improvement ever made in steel stall construction.

And—it is exclusive with the STAR. Does away with templates and anchor setting and enables you to finish up your curb with the rest of the concrete work.

When the stalls arrive, drop them in place, tighten the draw bolts of the STAR Curb Clamp and the job is done.

With the STAR Curb Clamp you can "set a stall in sixty seconds" and set it right.

Save Fuel by Building Warm

(Continued from page 51.)

land. House owners can be induced to purchase, and thousands of dollars will be taken in by live wires who properly present the money-saving features of cold weather protection. As Mr. Hyde says: "The question is not whether you can afford to make these improvements. With coal at its present price, can you afford not to make them?" The contractor who digs deeply into this wealth of opportunities, keeps a good force of men busy for many weeks, installing storm windows and storm doors.

Representative manufacturers have expanded their lines of storm doors and sash, and are putting into the hands of builders beautiful and instructive booklets to present to the consumer this whole story.

Don't overlook the good business and patriotism this winter of storm doors, storm sash and weatherstrips.



Weather Stripping a Money-Maker

THE Chicago Tribune in an article on the saving of coal says that the most effective saving in coal is made by sealing the openings in your building. They also make the statement that it is not a question whether you can afford to have them. With coal at the present price, can you afford to be without them?

The Building Specialty man needs no better argument than this. The high cost of fuel is going to make the weatherstrip business a winner this season.

This specialty line works in nicely with contracting

work and assures the carpenter of a good livelihood all winter when the building season is quiet. He need not confine his efforts to new buildings. There are enough old residences, school buildings, churches and public buildings to keep him busy.

President Wilson has said that one of the determining factors in this war is efficiency in the household.

The leak that boosts fuel bills in the winter and house-cleaning bills in the summer is the air leakage around poorly fitted windows and doors. This costs money and a lot of wasted energy in cleaning. This enormous loss in money and labor is from lack of efficiency.

The high cost of fuel is going to bring these facts home to your customers this season.

There is just one effective way to stop this cash and labor loss—use metal weatherstrip.

The weatherstrip business is the one building specialty that creates a livelihood for carpenters and contractors when the building season is quiet. With proper assistance in selling and installing a live carpenter can soon earn big profits.



Keeps Building Going

EVERY year we find the amount of building during the winter is increasing. The marked falling off that was always present in years gone by seems to have been largely eliminated.

(Continued to page 122.)

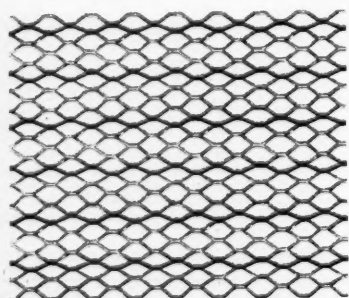


Don't Wait for New Building Projects

THESE illustrations suggest a profitable source of



business when conditions cause a reduction in the number of new buildings. And they reveal the astonishing transformation of old houses when overcoated with stucco. The best way to improve the interior of an old frame house is to overcoat it with stucco on



TRADE
MARK

Kno-Burn Corrugated Metal Lath

(Reg. U. S.
Pat. Off.)

It goes right on the weather boards and is self-furring, avoiding the extra labor of putting on furring strips. Ask for information on Overcoating.

North Western Expanded Metal Company

Member Associated Metal Lath Manufacturers

903 Old Colony Bldg.

Chicago, Illinois

WANTED—a man like Washburn

He made 200% profit in his second year!

WASHBURN LIVES in a little town alongside the Hudson. Three years ago he first heard of the Norwalk Vault. He lost no time scraping together \$450 and securing the agency for his county. Keeping his regular position, he worked his vault business nights and odd times.

WITHIN A YEAR his profits paid back his \$450 investment with a hundred dollars or so to spare. In his second year, he tells us, he cleared more than 200% profit. Since then he has been giving up his other work and putting his profits back into securing all the adjoining territory he can obtain. In a very few years he will have a big paying business of his own, and be independent for life.

Washburn started working outside his regular hours, without help, in a dark, low cellar. Now he has a fine new shop and plenty of help. While we are looking for men of his type—and believe his success shows what can be done under severe handicap—we would rather not have men that have to start as Washburn did. If he had had a going building business, for example, his profits would have been not only much quicker, but much bigger.

A MAN out in Michigan—for example—piled up in six years nearly 2000% profit. The Georgia Paving and Construction Company, down in Columbus, reports a 2000% increase in business in less than 10 years. The Los Angeles agent writes us that he finds from 200% to 300% greater profit in Norwalk Vaults than in any other sort of cement work.

DON'T GET the idea that the Norwalk Vault proposition is any "sure thing" or a get-rich-quick game. It is simply a thoroughly proven and tremendously profitable manufacturing line—preferably a side-line to begin with—for a practical man with energy and enterprise. For the man willing to work hard enough and able to put in a few hundred dollars, to get a fair start, the Norwalk Vault will give bigger and more certain returns than any other legitimate business we have ever heard of. This we know! It is no experiment.

FOR TEN years the Norwalk Vault Company has been doing business at the same place. Any bank or business house in Huron County can vouch for it. It has four vault factories of its own—one in Norwalk, one in Detroit, one in Plainfield, N. J., and one in New York City. As fast as more factories can be developed, the company will extend its own retail vault business. In the meantime, the company is assigning the manufacturing rights wherever it can find good men to represent it. More than 300 different agents are now building up the business, and more than half the United States has already been assigned to local manufacturers.

Who is making the Norwalk Vault in your territory? It would be interesting to find out how much more he would charge you now than he paid us a few years ago. The man who gets hold of a good piece of territory at present prices is lucky—for when it's once taken by somebody else, it's gone forever. Only one man can have it!

THE AVERAGE gain reported by local manufacturers of Norwalk Vaults throughout the United States equals 222% in about four years—a jump of around 50% for each year in business.

Undertakers everywhere are waking up to the fearful crudeness of the old way of burying without waterproof protection in the muddy bottom of a six foot cistern. In New York, especially, a change of sentiment has taken place: the leading undertakers are unanimous in praising the Norwalk. (We will be glad to send you a book of their letters.) And the same feeling is spreading rapidly all over the country. Part of the Norwalk's selling plan is thoroughly to make known the vault to the undertakers in your vicinity.

AS SOON as the public begins to realize the difference between the antiquated wooden box and the air-tight, moisture-proof, steel-and-cement Norwalk—the holders of the Norwalk Vault

franchise for any given district will find he has a mighty valuable possession. Only the other day the Philadelphia holders refused to sell for ten times what they originally paid.

OUR IDEA is to write several thousand local manufacturers all over the United States—each the best man in his own territory—and to develop a dozen or more districts of our own. Then we propose to make the idea of the cement burial case as thoroughly understood as the idea of a Pullman sleeping car, and the name "Norwalk Vault" as familiar as "Uneeda Biscuit." A long start—10 years of hard work—has already been made in this direction. The man who gets in now cashes in on both the past and the future.

READ THROUGH the advertisements in this or any other magazine and see if you can find any other proposition—PROVED BY TEN YEARS' GROWTH—that offers you half the opportunity this does. See if you can find any other article patented and trade-marked, with a sale based on as unchanging a thing as the human death rate, that you can develop exclusively in your own territory and cash in on as fast as the article becomes known to the public.

TWENTY LOCAL manufacturers selected at random from all over the United States, reported an average manufacturing cost of \$9.31 a vault, as against an average selling price of \$31.90—indicating a gross profit of \$22.59 per vault, or about 242%.

THIS, HOWEVER, is a greater gross profit than we would care to predict in all cases these present days. Even so, being made chiefly of cement and sand, the Norwalk is affected less than most propositions.

ON THE other hand, the Norwalk proposition has an EXTRAORDINARY VALUE just now as a side line for any business that has been affected in any way by the War, either by slowing down of sales or by the rising costs of material, or difficulties of transportation, etc. And as an additional line for BUILDERS it is absolutely ideal; takes up comparatively little space, requires only spare time labor, no new sales or delivery expenses, and gives a wonderful straight lead to customers who may later buy monuments!

IF THE general idea appeals to you—write us about it. Tell us just exactly how you are situated; ask any questions you like—our sales and office force are paid to tell you just what you want no obligation on your part whatever.

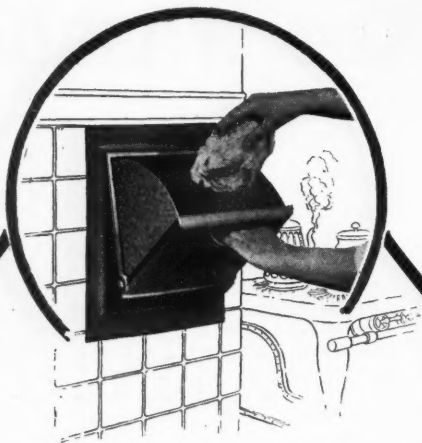
So much of the United States has already been taken up that we are placing the remainder on one single, simple sales plan: The cost to you varies only with the size of the territory and amount of equipment desired; a small payment will be accepted and payments may be spread out over a whole year if desired. No more territory will be allowed any man than he has capital and energy to develop fully—your success is essential to ours.

MOREOVER, IF, after six months' fair trial, you find for any reason you do not care to continue, we will agree to allow you to cancel your contract and return your molds on what you will agree are fair and liberal terms. Could anything better illustrate our entire faith in the Norwalk proposition?

YOUR TERRITORY may not be taken yet—there are a lot of excellent districts still untouched. If you are interested and are really able to handle a proposition of this kind, don't hesitate because it is new to you. Somebody else may write while you are thinking about it. Put your name and address on the bottom margin of this page and mail at once. Or, if you prefer, write us what you want particularly to find out, and save time.

----- TEAR ALONG THIS LINE -----
THE NORWALK VAULT COMPANY, 71 Prospect St., Norwalk, O.

Please send particulars of your proposition as advertised in American Builder to name and address below:



Can the Garbage Can!!!

Can the garbage can ever be a desirable feature in a residence or apartment?

THE

KERNERATOR

The Built-In-the-Chimney

INCINERATOR SYSTEM

IS THE

CLEANEST, QUICKEST and CHEAPEST

equipment for the complete and instantaneous elimination of garbage and waste.

Cleanest—because the garbage is burned to cinders by a method that also renders the wastage odorless. Garbage cans and rubbish piles with their flies, vermin and the like are eliminated (as the incinerator is located out of the way in the cellar). All waste including tin cans, garbage, broken crockery—everything that is not wanted, disappears forever through the little door in the kitchen.

Quickest—because as soon as waste accumulates it is placed in the hopper door shown above and falls down the flue to the incinerator in the basement.

Cheapest—because its first cost is its last. No commercial fuel is required. The garbage "consumes itself" when ignited, as there is plenty of paper, rags and other dry combustible material to burn and to dry out moisture in garbage, which, when dried, is readily combustible and burns to harmless ashes. Garbage haulage is eliminated.

Consider This, Mr. Contractor

Satisfied clients are your greatest asset. If you show them a way of eliminating all garbage and waste, without a penny of expense other than the nominal first cost, you will have solved for them one of their most disagreeable and annoying problems. No one wants garbage cans and waste piles around their homes. Here is a simple, efficient and economical method of eliminating these intolerable and unhealthful nuisances.

Your buildings will be more desirable than any others in your community. Your clients will be grateful.

Send for our two big books which describe the Kernerator completely and state what users have to say about them.

Address Dept. A

THE KERNER INCINERATOR CO.

592 Clinton Street, Milwaukee, Wis.

(Continued from page 120.)

For the coming winter, we do not believe there will be any slackening of construction work. In fact, there dare not be. With the great number of our mechanics that are called into our national service, every available man should keep continually busy. Many buildings will be required, and they will be required quickly, calling forth the greatest possible efficiency in our construction forces.

Improved machinery and systems of erection make the winter building extremely simple. Nowadays, there is no occasion for delays and the quality of the work measures up to the highest standards. For instance, reinforced concrete—which at one time was considered purely a seasonal construction—is now being installed as commonly in winter as at any other time. It is extremely fortunate that this is so, because, owing to the steel situation, builders are using reinforced concrete much more widely than ever before for permanent construction.

The coming winter should be an exceptionally busy one for builders.

S. M. FECHHEIMER,

Manager Publicity Department,
Trussed Concrete Steel Co.



Concreting on a 12-Months' Basis

IMPROVED methods in handling construction work during the winter months have convinced builders and contractors that wherever at all possible it is a decided economy to keep the job going thru the cold weather.

Everyone knows that equipment when kept steadily in use is much more of a money maker than when idle three or four months in each year. It is these three or four months' idleness which boosts overhead charges on tools and machinery.

Due to labor shortage every long-headed employer should exert his best efforts in keeping his organization together. A layoff may mean that when work opens up his best men will have permanent jobs in some other line, and thus make it necessary for him to build up his force all over again.

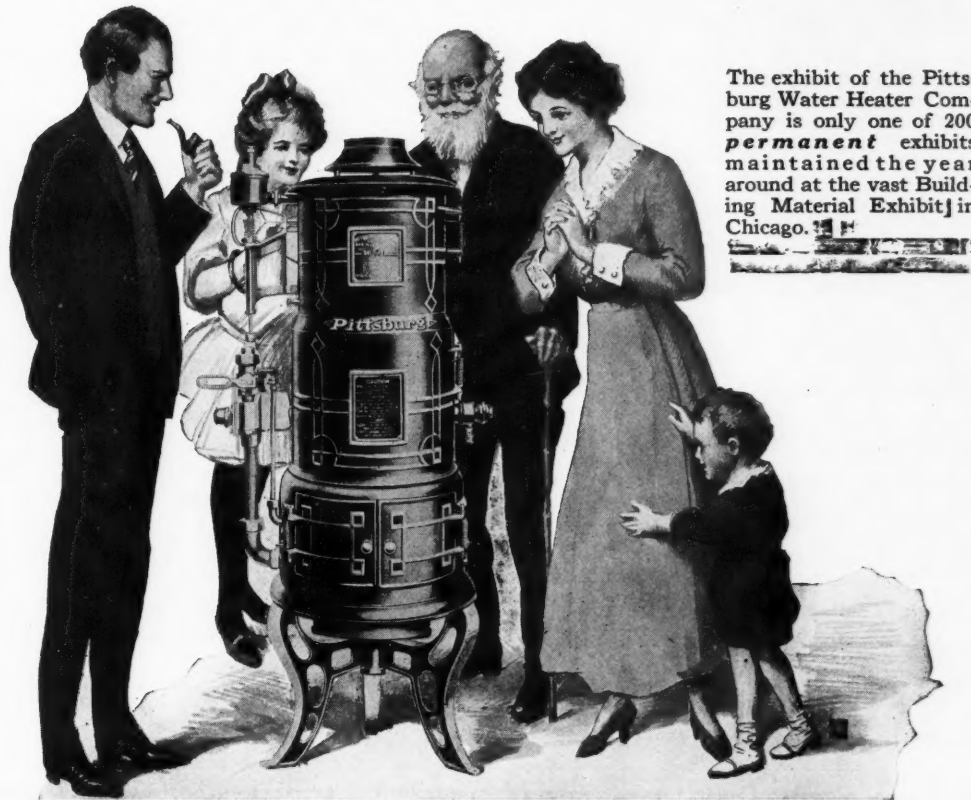
In concrete construction it has been found perfectly safe and economical in the majority of cases to continue placing concrete thru freezing weather. This, we are advocating, of course, with the proviso that the customary precautions are taken against freezing of the fresh concrete.

The methods now practically standard for preventing this are heating of the aggregate and mixing water; and protection of the fresh concrete until it has hardened. When these two things are carefully and thoroly carried out, concrete work can go on uninterrupted thru the coldest weather.

We have just received report of a job carried on thru cold weather, when an average temperature of 30 to 38 degrees below zero was experienced. This con-

(Continued to page 124.)

COME! COME! COME!



The exhibit of the Pittsburgh Water Heater Company is only one of 200 **permanent** exhibits maintained the year around at the vast Building Material Exhibit in Chicago.

COME to the biggest building show on earth. 200 live, interesting exhibits from the country's foremost manufacturers of building materials grouped on one immense floor for your convenience.

Building Material Exhibit

Entire Second Floor, Insurance Exchange Bldg.
Jackson Blvd. and Fifth Ave., Chicago

More than 12,000 builders select and order their materials here every month. You can save time and money at this great show of building products.

Be Sure to

"Look Before You Build"

(Continued from page 124.)

struction was successfully completed by means of the methods mentioned, and is a convincing argument as to the feasibility of keeping things coming for twelve months in the year.

In mixing and placing concrete when the temperature falls below 35 degrees Fahrenheit, there is just one precaution to be observed—*prevent the concrete from freezing until it has become thoroly hardened.* Freezing is prevented by two things (1) heating the materials, (2) protecting the fresh concrete from the cold.

Water for mixing is heated in the water barrel or supply tank by a coil of pipe thru which passes exhaust or live steam. There are also available devices for heating the water by direct contact with steam as it passes thru a mixing valve. On small jobs a large kettle or cauldron with fire beneath, is employed for heating the mixing water. With all methods water is usually heated to about 150 degrees.

Sand and Stone are heated by steam coils or by thrusting one or more steam pipes into piles of material. The steam pipes are drawn down to a small opening at the end so as not to pass too much steam. Some prefer to perforate the steam coils with a number of small holes to allow the steam to pass out. As the steam rises thru the sand and stone, is effectually heats the particles. At times, canvas is covered over the tops of the material piles to prevent the too rapid

escape of the heated steam. Another method of heating the sand and stone is by means of old sheet iron pipes embedded in the piles. Wood fires in the pipes furnish the heat. *Cement should not be heated.*

All fresh concrete must be protected immediately upon being placed in the forms. This is accomplished by covering with canvas and a thick layer of hay or straw. This suffices for large masswork or where low temperatures are not experienced. For small concrete members or thin floor where the mass of concrete is small it is customary to enclose the work with building paper or canvas and heat the interior by means of salamanders (sheet iron stoves).

Forms in winter work must be left in place a longer time than with normal temperatures.

E. K. BORCHARD,
Engineer, Technical Department,
The Atlas Portland Cement Co.

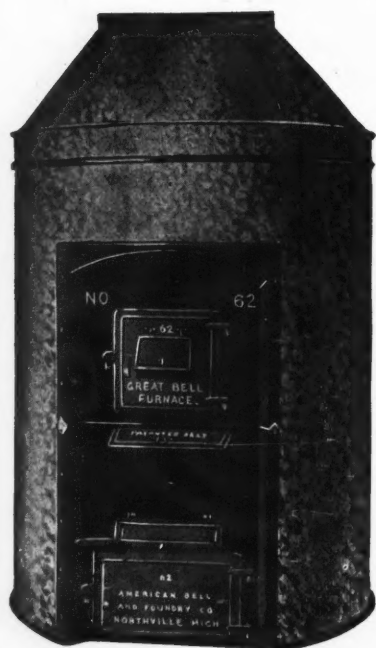


Winter Plans for Better Building Next Summer

WHEN the wind whistles around the chimney and the glowing fireplace invites us to spend our evenings at home many of us are beginning to plan for improvements, additions and new buildings to start in the early spring.

More and more there is a tendency to build better.

(Continued to page 126.)



The Great Bell

-original Pipeless Furnace

Father of Them All

We have thousands in use. Sizes, styles and prices to suit all. \$38.00 to \$94.00.

Made for the building where a furnace is needed, but where the cost has been prohibited.

The GREAT BELL PIPELESS FURNACE will heat any one or two-story building in the most efficient manner with the least effort and the lowest relative cost. While **Cost** is secondary to **Service** in this furnace, our methods of production and sales have reduced the cost so low that no builder can afford to overlook our proposition.

And we guarantee our furnaces to be and do all we claim for them in both catalog and correspondence. Write for our catalogs, describing the various styles, prices and specifications of the Great Bell Furnaces.

American Bell & Foundry Co.

27 Cody Street, Northville, Mich.



No odors from the Majestic Sanitary Garbage Receiver.

A Coal Chute always ready.

It locks from inside and is absolutely burglar-proof.

Majestic Package Receiver, an absolute protection against storms and theft. Can be installed in any house old or new.

Have you ever

figured in dollars and cents the value of an idea? Did you ever stop to consider —that the last big profitable deal you made was the result of just one little idea? We are suggesting an idea of worth and profit to YOU.

These are facts—proven by the tests and practice of other men who have done exactly what we want you to do.

HERE YOU HAVE IT

Sell and install the Majestic Coal Chutes and One-Register Duplex Heating System with the patented projecting register—make dollars roll in during the dull winter months.

These, with other metal specialties as built in Garbage Receivers, Milk and Package Receivers, Rubbish Burners, Duplex One-Register Store Heating Systems, Metal Plant Boxes, Pipe and Pipeless Furnaces, etc.

Get into action now and investigate this proposition. Send in coupon today—get started on your orders now—today.



MAJESTIC CO.
702 Erie Street Huntington, Ind.

Cut Here

Gentlemen:—

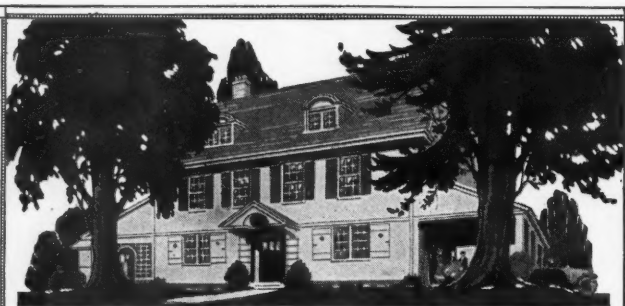
Please send me detailed information about your big money making scheme.

I am most interested in

Name.....

Address.....

City.....



Why Every Modern Kitchen Should Have a KOHLER Sink

KOHLER Sinks have the same quality distinctions that make KOHLER Bath Tubs and Lavatories first choice for the well planned home.

The designs have the hygienic features that are characteristic of all

KOHLER WARE

always of one quality—the highest

KOHLER Sinks are made for right and left-hand corners, and for open wall spaces. They have right, left or double sloping drain-boards, and are made without aprons.

"It's in the Kohler Enamel"

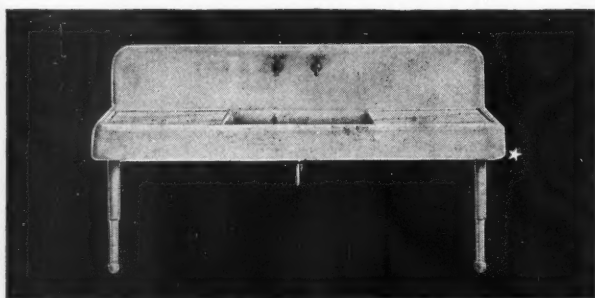
The whiteness of the enamel is notable in all KOHLER products, each of which has our permanent trade-mark—a guarantee of its high quality.

Owing to manufacturing economies the prices of KOHLER WARE are not excessive.

KOHLER CO., Founded 1873 **Kohler, Wis.**

Boston New York Philadelphia Pittsburgh Detroit
Chicago Indianapolis St. Paul St. Louis
Houston San Francisco Los Angeles
Seattle London

*The KOHLER permanent trade-mark in faint blue appears on end of sink shown by star.



F-1003-A

(Continued from page 124.)

The great losses by fire that constantly occur in this country are coming to be regarded as almost criminal. The great majority of waste thru destruction by fire is absolutely unnecessary if proper precautions are taken to prevent the spread of flames.

The home builders in the past have seemed to regard the matter of protection from fire as applying only to business buildings or large structures. As a matter of fact it is just exactly as important that homes be properly constructed if we are going to prevent such conflagrations as we have witnessed in a great number of our important cities.

Expanded metal lath for years has been used in the larger buildings and is now being used in a large number of the better built homes. This lath not only offers no food for flames but it reinforces the plaster in such a way that cracks are prevented, thus making it possible to decorate immediately after the plaster is dry. It also prevents rats and mice from gnawing thru the walls, thus giving sanitary protection as well as fire protection.

Even where the ordinary wood studs and joists are used for the framework of the home the application of expanded metal lath will greatly reduce the fire risk; as plaster on metal lath will resist intense heat as has been proven by official tests made where plaster on metal lath applied on wood studs resisted a fire of 1700 degrees for a period of over an hour without any sign of giving way. This means that a fire starting in any room can be held in that room sufficiently long to get it under control before it spreads to other parts of the building.

We shall be glad to place those of our readers in touch with concerns who will give them full information regarding fire resisting materials for their new buildings.



Winter Work Notes

(Continued from page 48.)

in the past selling and installing pipeless furnaces, know that this is the most favorable season of the year for starting their campaigns. The advantages of this system of heating when compared to the old coal stove method are many and quite generally known. Don't fail to consider the housewife in your sales plan. She holds the strings of the family purse more often than you might think. Here's the real tip: the average woman loves home comfort and hates dirt. Make these points the basis of your sales talk.

Why should attic space be wasted? Another chance for winter work: Fit up an inexpensive den in the attic where the man of the house can fill the air with smoke and the floor with ashes to his heart's content. A few 2 by 4's and a door will just about complete the lumber bill and the walls can be finished with roll roofing or wallboard. The roll roofing can be obtained in a number of colors, such as dark red, greenish-gray, brown, garnet and emerald, making an attractive job.

Free Lesson



In Plan Reading

Accept this offer while it lasts. Send for this FREE Lesson which will show you how quickly you can learn Plan Reading by our new easy method. Not a penny to pay for it—and no obligation upon you for asking.

This knowledge is what you must have to become a foreman or superintendent in charge of building work or to go into the contracting business on your own account. Without a good knowledge of plans your opportunities are limited. The man at work doesn't get the chance to study the blue prints himself or to have their meaning explained. We make the chance for you. We place in your hands plans used in actual building work by contractors in Chicago and other cities. We explain every detail. We make it as easy for you to read a plan as it is for you to read this advertisement. Your lessons will be given by practical contractors—men in charge of building work in Chicago and they will show you how to get the knowledge that brings advancement and more money. To get full information sign and mail the coupon below.

A Few Things We Teach

PLAN READING

How to read a building plan. Floor plans and elevations. Use and meaning of different lines on the plan. Sections and section lines. Cross Sections. How different materials are shown on the plan. How to read dimensions. Detail drawings. How to lay out work from the plans. Tracings and blue prints—how they are made. Practice in reading complete plans from basement to roof, etc., etc.

CONSTRUCTION

Brickwork: Footings and foundation walls of brick, concrete and stone. Brick laying, joints in brick work, pointing, tuck pointing, etc. Brick and stone arches. Use of different kinds of stone. Carpentry: Kinds and uses of woods, cornices, interior details, framing, roof construction, bridging, miter joints, butt joints, etc. How plans are made. Complete instructions illustrated by working blue prints. Plans and specifications. Residences, apartment buildings, factory buildings, school houses, hospitals, store and office buildings, bank buildings.

ESTIMATING

Practical rules. Problems worked out from the plans. Brickwork and carpentry. Excavations. Labor and material for footings in brick, concrete and rubble stone. Methods of practical builders. Re-inforced concrete—full plans and specifications for re-inforced concrete buildings. Estimates of labor and material required. Labor and material for brick work; figuring common and pressed brick walls of different thicknesses, etc. Chimneys, fire places and cisterns. Fire proofing, tile flooring, arches, partitions, furring, terra cotta, etc. Lumber and timber; figuring board feet. Estimating posts, girders, sills, joints, studs, bridging, rafters, etc. Estimating all kinds of roofs, floors, siding, cornices, etc. Labor for rough and finished carpentry. Estimating mill work. Labor and material for window and door frames, sash, blinds, base board, wainscoting and all kinds of closets, cupboards, etc. Lathing and plastering, sheet metal work, exterior and interior marble jointing and decorating, glazing, plumbing, heating, wiring, etc.

ARITHMETIC

A complete but condensed course in arithmetic expressly arranged for contractors and builders. Teaches all a man in this business needs to know.

ARCHITECTURE COURSES IN DRAFTING

We also offer complete home-study courses in Architectural and other branches of Drafting. If interested in any branch of Drafting mention subject and ask for special catalog.

Builders' Course on Easy Payments

Read at the left the partial list of subjects we will teach you in this Builders' Course. This is a course that gets right down to the things you need to know. Every lesson gives you information that will make you worth more in the building business. And you can get all this on easy payments. We don't ask you to pay all down when you enroll. A small first payment—then payments monthly—so small you will never feel the cost. Don't put off enrolling. At least send for the Free Lesson and see for yourself what this Course really gives you and how easily you can learn.

Learn By Mail

Keep your present job while studying this Course. Use your spare time at home to learn how to be a better workman, a better foreman or a better contractor. In only a few months you can complete the Course under the direction of our experts and then be ready to make a larger income. Once enrolled you have the privilege of consulting us at any time even after you have completed your studies. Our experts will always be ready to help you.

Send the Coupon

Get this information now. Learn how to make more out of your work or out of your business by knowing more about it. All this information is free. Send while the offer lasts. Whether you decide to take the course or not you ought to get this Lesson and see what it teaches in Plan Reading. Just sign and mail the coupon.

CHICAGO TECHNICAL COLLEGE,

1036 Chicago "Tech" Building, Chicago

Without obligation on my part, send me the Free Lesson in Plan Reading, also information on your Builders Course in Plan Reading, Estimating, etc.

Name.....

Address.....

Present Occupation.....

Chicago Technical College
1036 Chicago "Tech" Building, Chicago

Good Business to Talk Ventilation

(Continued from page 50.)

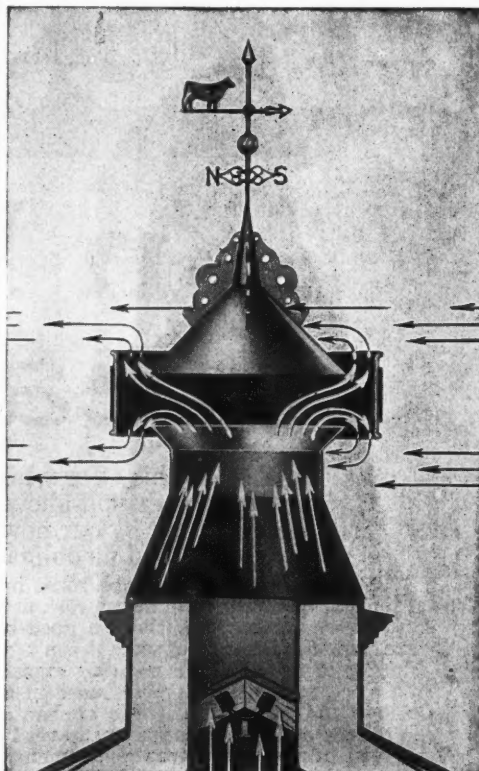
blows the harder this aerator will draw. It is built on the syphon principle, and results are always secured.

Note by the arrows that the wind striking the band passes over this, and forms a suction for the air behind it, thus creating a continuous and steady draft at all times. It is absolutely impossible for the wind to blow into this type of aerator.

A few years ago ventilators, cupolas and aerators were put on barns largely for the purpose of finishing them, and even now this is one of the great factors in equipping a building with something of this nature.

What is more beautiful than a nice barn equipped with bright shining steel ventilators or aerators? Tourists who are passing a place of this kind cannot help but stop and take the second look at a building of this kind. Contractors and builders have real-

ized the importance of equipping their buildings with the right kind of ventilators or aerators, and have explained the value of this to their customers.



Showing How the Wind From Any Direction Sucks the Foul Air Out of the Barn.

No doubt you have been driving thru the country many times and have noticed the different types of ventilators, cupolas and aerators on the barns. You will remember how pleasing to the eye it was to find a nice barn equipped with finely built aerators or ventilators on the roof.

Yet while they add immensely to the appearance of the buildings they are not made for the purpose only of adding beauty and architecture to the entire farm, but are very practical for the purpose of ventilating the building. Many of these barns that are equipped with steel ventilators and aerators do not have complete ventilating systems in them, but the time is coming when every one of these barn owners will realize the importance of pure air for his stock,

(Continued to page 130.)



How about F A L L business?

Do you expect a slump during the coming Fall and Winter season? Are you interested in a proposition that would keep you busy every working day of the season? In other words do you want to spend a little more energy now and line up business that will carry you through the dull season?

If so, you will want to find out about

ALLMETAL WEATHERSTRIP

It's a live specialty! Why not work up a fine substantial business with Allmetal Weatherstrip by the assistance of our carefully devised, sure-fire, sales plan. Allmetal Weatherstrip, owing to its simplicity of design, is the easiest to install—it is the best known and therefore easiest to sell.

Allmetal has Uncle Sam's Approval

It is the one strip that will not crack, rust, decay or disfigure the woodwork. He has selected it for his defense against leaky, balky windows and high cost of fuel. It is the perfect, the modern, the only strip to use.

We show You how to get quick results

Our short cut methods get live prospects quickly. We give you the benefit of our experience. Supply you with advertising material adapted for your particular purpose. Write—get started NOW!

Allmetal Weatherstrip Company, 230 West Madison St., Chicago

Diamond Metal Weather Strips and Diamond Calking and Glazing Compound

Have built up a permanent, profitable business for a large number of **contractors** and **carpenters** who took the agency as a side line and developed enough business to devote their entire time to it, some making from \$3,000 to \$5,000 per year clear profit. **Why? Because** the goods are **the best on the market**—which makes satisfied customers. If you're not a Diamond agent you're missing something. Write for agency proposition—now—today.

Address C. J. PARSONS, Manager
The Diamond Metal Weather Strip Co. Columbus, Ohio

This Is Why Caldwell Steel Tanks Satisfy



- Carefully designed according to approved engineering principles.
- Correctly and thoroughly riveted.
- Made by first-class workmen in an up-to-date steel tank shop.
- And therefore absolutely safe and non-leakable.

Send for Catalogue

W. E. CALDWELL CO.
 Incorporated
 1990 Brook Street
 LOUISVILLE, KY.

Caldwell
 TANKS
 AND
 TOWERS

Special Drawing Set

No. 450

Price \$4.65

Sent parcel post prepaid

Cash with order



We have also a full assortment of large sets of instruments

PEERLESS BLUE PRINT CO.
 341-347 FIFTH AVE. NEW YORK CITY



I want, through this advertisement, to establish as friendly business relations with you as I possibly can. I want you to realize also, that it is my earnest effort and intention to give you full honest value for every dollar that you spend with me. This is the only way I can succeed. My advertisement has appeared in the leading magazines continuously for more than four years.

I am building up my business on the foundation of good value and square dealings. I am saving thousands of satisfied customers thousands of dollars, by supplying perfect late style—visible writing—typewriters, at remarkably low prices.

All my transactions are handled throughout by personal correspondence. I assure you every courtesy and consideration, in your dealings with me. Your order will have my prompt, careful, personal attention. I will be glad to do business with you.

Harry A. Smith

ALL LATEST IMPROVEMENTS

Typewriter Sensation

Free TRIAL—Use As You Pay

Send me only \$2.50 a month until the low total price of \$48.80 is paid, and the machine is yours

This is absolutely the most generous typewriter offer ever made. Do not rent a machine when you can pay \$2.50 a month and own one. Think of it—Buying a \$100.00 machine for \$48.80. Cash price, \$45.45.

Perfect machines, standard size, keyboard of standard universal arrangement—universally used in teaching the touch system. The entire line of writing completely visible at all times, has the inbuilt tabulator, with billing device, the two color ribbon—with automatic reverse and key controlled shift, automatic flexible paper fed—automatic paper fingers, the back spacer—ball bearing carriage action—ball bearing shift action—ball bearing type bars—in fact, every late style feature and modern operating convenience. Comes to you with everything complete, tools, cover, operating book and instructions, ribbon, practice paper—nothing extra to buy. You cannot imagine the perfection of this beautiful reconstructed typewriter until you have seen it. I have sold several thousand of these perfect, latest style L. C. Smith machines at this bargain price, and every one of these thousands of satisfied customers had this beautiful, strictly up-to-date machine on five days' free trial before deciding to buy it. I will send it to you F. O. B. Chicago for five days' free trial. It will sell itself, but if you are not satisfied that this is the greatest typewriter you ever saw, you can return it at my expense. You won't want to return it after you try it—you cannot equal this wonderful value anywhere.

YOU TAKE NO RISK—PUT IN YOUR ORDER NOW

When the typewriter arrives deposit with the express agent \$8.80 and take the machine for five days' trial. If you are convinced that it is the best typewriter you ever saw keep it and send me \$2.50 a month until my bargain price of \$48.80 is paid. If you don't want it, return it to the express agent, receive your \$8.80 and return the machine to me. I will pay the return express charges. This machine is guaranteed just as if you paid \$100.00 for it. It is standard. Over one hundred thousand people own and use these typewriters and think them the best manufactured. The supply at this price is very limited, the price will probably be raised when my next advertisement appears, so don't delay. Fill in the coupon today—mail to me—the typewriter will be shipped promptly. There is no red tape. I employ no solicitors—no collectors—no chattel mortgage. It is simply understood that I retain title to the machine until the full \$48.80 is paid. You cannot lose. It is the greatest typewriter opportunity you will ever have. Do not send me one cent. Get the coupon in the mails today—sure.

HARRY A. SMITH, 300-231 N. Fifth Avenue CHICAGO

STANDARD VISIBLE L.C. SMITH

Never before has anything like this been attempted.

H. A. SMITH
 Room 300
 231 N. Fifth Avenue
 CHICAGO

Ship me the L. C. Smith, F. O. B. Chicago, as described in this advertisement. I will pay you the \$40.00 balance of the SPECIAL \$48.80 purchase price, at the rate of \$2.50 per month. The title to remain in you until fully paid for. It is understood that I have five days in which to examine and try the typewriter. If I choose not to keep it I will carefully repack it and return it to the express agent. It is understood that you give the standard guarantee for one year.

Name.....

Address.....

(Continued from page 128.)

and will insist upon having the right kind of a guaranteed ventilating system installed in his building.

Many contractors are taking up this work during the winter months when other work is slack. They find that they can get a complete ventilating system already manufactured and ready to be installed, and this gives them a great deal of nice work during the winter months, as it is on the inside of the building, and they can do this work when they could not possibly work on the outside.

It is during the winter that the barns must be ventilated. Of course they must be ventilated in the summer just as well but by opening the doors and windows there are no bad results during the hot summer months.



Your Reputation Demands

UPSON PROCESSED BOARD

---the Most Dependable Wall Board

Made in America

Contains no dirty, black materials or cheap, punky "jack pine" fibers.

Write for Samples and Information

THE UPSON CO. Fiber Board Authorities 16 Upson Point, Lockport, N. Y.

LOOK FOR THE FAMOUS BLUE CENTER



Cuts Cost of New Work

COMPO-Board is the one wall lining that can be used in new jobs without liability of buckling and cupping between studding. Its core of wood gives it strength to withstand a strain of 650 pounds nailed on studding with 16" centers.

It has proved its low cost, strength and highly satisfactory service in school class rooms where blackboards are essential, on ocean-going steam ships as lining for state-rooms, saloons, etc., and in many other places where it has successfully withstood terrific strain.

It is elastic enough to be bent or shaped, without breaking, to meet a variety of conditions—such as curved ceilings, alcoves, store window display backgrounds, etc.

If you would be modern in your ideas about building, you owe it to yourself to get acquainted with Compo-Board.

Write for free sample and interesting booklet.

The Compo-Board Co.,
5777 Lyndale Ave. N.,
Minneapolis - Minnesota

In the winter, however, this is not true, and it is necessary to keep the doors and windows closed, and a circulation must be secured by another method. This is the reason why some kind of a ventilating apparatus should be installed in every modern farm building.

Contractors have realized this for a long time, and with the assistance of the educational work being done in the farm papers it will not be long before they will make it perfectly clear to the barn owner that something should be done regarding this important matter.

If the farmer gets more money out of his cows and his animals he will have more money to spend for building. For this reason every contractor and builder should make a special effort during the coming winter to bring the attention of every good barn owner in his community towards proper ventilation in his barn.



Two Typical Power Shops

(Continued from page 68.)

The other contractor having more money and wanting to get in on a large scale, installed a 32-inch band saw, 12-inch jointer, and 14-inch combination variety saw table, swing saw, wood lathe and post borer, which are all driven from the countershaft, being pulled by the 15-horsepower motor. His total expense was about \$1,750; size of shop, 80 by 120 feet.

He is also doing a variety of contracting and finds this shop a great help in keeping his work going thru the winter months.



Fiberlic

Wall

Board

Fiberlic

Wood Grain

Panels

The material from which it is made, the fact that the pulp is chemically cleansed and that the *fiber lengths* give the finished product that *natural reinforcement* that is lacking in ground wood boards, is in itself a guarantee of the superiority of Fiberlic from strong, permanent, economical and sanitary construction.

MacAndrews & Forbes Company

200 Fifth Avenue, New York City

Factory: Camden, N. J.



NO INTERRUPTION to BUSINESS WHILE REMODELING!

CARPENTERS installing partitions, new windows or backgrounds can do a profitable job—in many ways more pleasing to store owners—if they suggest

CAREY

Ceil-Board

SUPERSEDES PLASTER FOR WALLS AND CEILINGS

No dirt, no damage to floors or goods, no delay on account of plasterers; business goes forward as usual. You erect a simple frame and cover it with Ceil-board furnished in Golden Oak, Mission or Circassian Walnut. (Also furnished in plain finishes for tinting.) One satisfactory job brings another. Write us for samples and particulars.

THE PHILIP CAREY COMPANY

1021 Wayne Ave., Lockland

Cincinnati, Ohio

Waterproof
PLASTERGON
TREATED
WOOD FIBRE
WALL-BOARD

Let Us Help You Land Wall Board Contracts

THERE are two ways for carpenters, contractors and builders to land wall board jobs. One is by creating the business themselves and the other is to bid on competitive work.

In the one instance

Plastergon Wall Board

enables you to under-bid all competition on an equal quality of work.

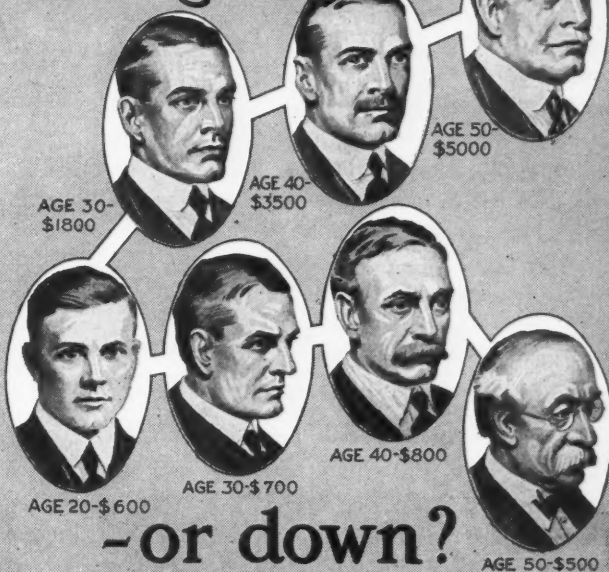
In the other instance, our service department is at all times ready to furnish you unique plans, literature and other matter that creates a sale practically every time.

Plastergon Wall Board is water-proof, warp-proof and twist-proof. It has no equal at any price, yet on a finished job you save from \$4 to \$6 per thousand square feet over other wall boards.

Ask for full particulars regarding Plastergon and our Service

Plastergon Wall Board Co.
201 Philadelphia Ave., Buffalo, N. Y.

Going up?



HERE is your future charted for you, based on the actual average earnings of trained and untrained men.

Which way will you go? You'll either go *up*, through *training*, to a position that means good money and more comforts as the years go by, or you'll go *down*, through *lack* of training, into the ranks of the poorly paid.

It rests entirely with you which way you go. You can make or break your own future. And *now* is the time to decide. Not next year, not next month, but *now*. You can go up if you want to. You can get the training that will command a trained man's salary. The International Correspondence Schools have helped hundreds of thousands of men to qualify for advancement. Let them show *you* how *you* can prepare yourself, in your own home, for the position you want in the work you like best.

At least, find out what the I. C. S. can do for you, by marking and mailing this coupon. It will be the first step upward. Choose your future from this list, then get this coupon into the mail today.

I. C. S.
Box 8147
Scranton, Pa.

INTERNATIONAL CORRESPONDENCE SCHOOLS

Box 8147 SCRANTON, PA.

Explain, without obligating me, how I can qualify for the position, or in the subject, before which I mark X.

- | | |
|---|---|
| <input type="checkbox"/> ARCHITECT | <input type="checkbox"/> Law for Contractors |
| <input type="checkbox"/> Architectural Draftsman | <input type="checkbox"/> BUSINESS (Complete) |
| <input type="checkbox"/> Contractor and Builder | <input type="checkbox"/> BOOKKEEPER |
| <input type="checkbox"/> Building Foreman | <input type="checkbox"/> Stenographer and Typist |
| <input type="checkbox"/> Concrete Builder | <input type="checkbox"/> Higher Accounting |
| <input type="checkbox"/> Plumber and Steam Fitter | <input type="checkbox"/> GOOD ENGLISH |
| <input type="checkbox"/> Heating and Ventilation | <input type="checkbox"/> Common School Subjects |
| <input type="checkbox"/> Plumbing Inspector | <input type="checkbox"/> MATHEMATICS |
| <input type="checkbox"/> Foreman Plumber | <input type="checkbox"/> SALESMANSHIP |
| <input type="checkbox"/> CIVIL ENGINEER | <input type="checkbox"/> ADVERTISING MAN |
| <input type="checkbox"/> Surveying and Mapping | <input type="checkbox"/> Window Trimmer |
| <input type="checkbox"/> Structural Engineer | <input type="checkbox"/> Show Card Writer |
| <input type="checkbox"/> Structural Draftsman | <input type="checkbox"/> CIVIL SERVICE |
| <input type="checkbox"/> ELECTRICAL ENGINEER | <input type="checkbox"/> Railway Mail Clerk |
| <input type="checkbox"/> Electric Lighting | <input type="checkbox"/> AGRICULTURE |
| <input type="checkbox"/> Electric Wiring | <input type="checkbox"/> Poultry Raising |
| <input type="checkbox"/> Electric Car Running | <input type="checkbox"/> MINE FOREMAN OR ENGR |
| <input type="checkbox"/> MECHANICAL ENGINEER | <input type="checkbox"/> Metallurgist or Prospector |
| <input type="checkbox"/> Mechanical Draftsman | <input type="checkbox"/> Chemical Eng'r |
| <input type="checkbox"/> Shop Practice | <input type="checkbox"/> Gas Engineer |
| <input type="checkbox"/> Sheet Metal Worker | <input type="checkbox"/> AUTOMOBILES |
| <input type="checkbox"/> STATIONARY ENGINEER | <input type="checkbox"/> Auto Repairing |
| | <input type="checkbox"/> Spanish |
| | <input type="checkbox"/> German |
| | <input type="checkbox"/> French |
| | <input type="checkbox"/> Italian |

Name _____
Occupation & Employer _____
Street and No. _____
City _____ State _____

name of Course you want is not in this list, write it below.

The Man from the Lumber Yard

(Continued from page 45.)

ber previous had shut down because of some money difficulty.

On the evening of the day of the shutdown, he was looking thru the advertising pages of the AMERICAN BUILDER and was impressed with the merit of a weather stripping he saw advertised. He at once wrote for full information and bought a small stock.

His first canvassing work was to owners of buildings of four or five years of age. He made a price per window and per door attached.

He cleaned up a little better than regular wage and had as a by-product *experience* and *acquaintance* with the people he had served. For every \$10 of material he used, he got \$30 for his work.

Pipeless—Not Smokeless

Do you know that the farmer, taking the country as a whole, has harvested and still is harvesting phenomenal crops and is getting record-breaking prices? It is true that his twine, oil, labor, etc., are costing him more than before, but his net results are larger. Many are now contemplating building better houses, better protection for their stock, etc.



HONESTLY MADE
Clean Through to the Centre

Asphalt Shingles

STOWELL MFG. CO. Red and Green
42 CULVER AVE., JERSEY CITY, N. J. Asphalt Prepared Roofing

SLATE WE HAVE WHAT
YOU WANT

*In Roofing Slate, Slate Blackboards
Structural and Plumbers' Slate*

SATISFACTION GUARANTEED in QUALITY and PRICE

Ask for Delivered Prices

J. K. HOWER Station C Danielsville, Pa.

R. J. KICHLIN, Sales Agent

ROOF SLATE

Of every kind. Black—also the varying delicate shadings and rich tones of Red, Green and Purple—clear and in mottled effects.

Structural Slate — Slate Blackboards

E. J. JOHNSON, Inc.

Quarriers of Slate

West 44th Street, NEW YORK

But there are a large number who want to improve the comforts of their present homes, and they have the money to do it. In place of heating in the old unsatisfactory way, why not install pipeless furnaces for them. Our Editor has a large amount of data on pipeless furnaces that is at your command.

Stop the Slump

I will bet my old straw hat that within 60 days there will be some who read this who will be out of a job.

There always has been from 60 to 75 per cent of slump. It is up to you to see that there is from 75 to 90 per cent of work.

I am not talking about large enterprises that had to be started last August to be under way when snow flies, but of those things that you can study out during the next 30 days to keep you busy for the three months to follow.

You possibly wonder why people who have money to spend and are willing to spend it don't have many conveniences of which you know. You remember that the mental process is, first, to get people acquainted with the possibility; second, get people to wanting the goods; third, buying comes easy after that.

Look over our pages and get the names of wallboard makers.

They will be glad to send you booklets showing how attics can be made over at small cost for material into

(Continued to page 134.)

"CREO-DIPT" Thatch Roofs

HERE'S an example of one of the most artistic developments of the present day architecture.

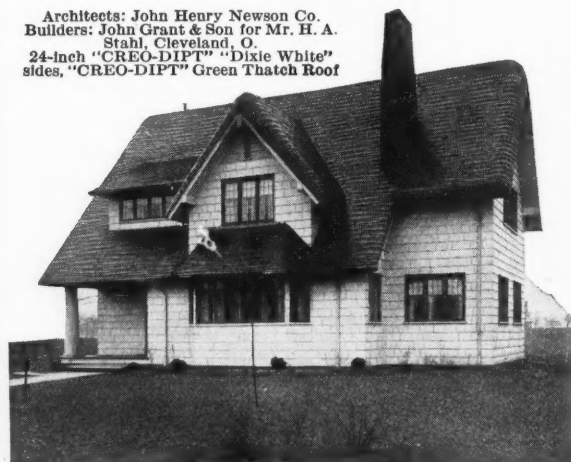
Send for our beautiful book. It explains how "CREO-DIPT" Stained Shingles are bent and sawed so that they are laid easily to give this Thatch Effect.

Also ask about 24-inch "CREO-DIPT" hand split cypress for side walls.

CREO-DIPT COMPANY, Inc.

1028 Oliver Street No. Tonawanda, N. Y.
Factory in Chicago for West

Architects: John Henry Newson Co.
Builders: John Grant & Son for Mr. H. A. Stahl, Cleveland, O.
24-inch "CREO-DIPT" "Dixie White" sides, "CREO-DIPT" Green Thatch Roof





The PERFECT MATERIAL

BAYONNE Roof and Deck Cloth contains all the advantages found in other materials and eliminates their disadvantages.

BAYONNE is Wear and Weather-proof. It is impervious to the elements; it will stand constant walking upon.

BAYONNE is easy to lay. Saves paint, time and labor. Is laid on dry boards and painted afterwards to conform to any desired color scheme.

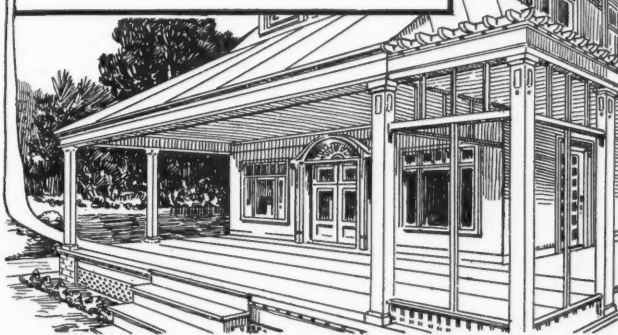
BAYONNE will not crack, peel or scale. Always retains its smooth, neat appearance. Can be kept perfectly clean by sluicing with water, like cement.

Satisfaction is assured when **Bayonne** is used. Specify it to be certain of the job measuring up to your high standards.

Let us send you our Sample Book N and booklet giving opinions of builders. We feel certain you will find them most interesting to peruse.

JOHN BOYLE & CO., Inc.

112-114 Duane Street, 70-72 Reade Street, New York City
St. Louis Branch—202-204 Market Street



*Residence at Greenwich, Conn.
Cross and Cross, Architects, New York*

SPECIAL MOTTLED HUDSON SHINGLES

laid according to the Thatched Method were used on the roof of this building.

Hudson Shingles do not catch fire from sparks, and are approved by the National Board of Fire Underwriters.

Write us for samples and book entitled "Shingling and Roofing."

Asphalt Ready Roofing Co.



Dept. 53, 9 Church Street
New York

ROOFING SLATE

"they were represented to be as good as GFT slate but after we used them we know POSITIVELY that they were NOT AS REPRESENTED. Hereafter we will use GFT slate. We are done with 'Just as Good' brands." This is the experience of all who buy UNKNOWN brands of roofing. Insist on GFT slate. They are the best and cheapest in the end. Price List and Catalogue on request.

Sole Manufacturers
Slatington Slate Co.
Slatington, Pa.

The Roof of Eternal Youth

SHeldon's

RED, GREEN, PURPLE, BLACK

SLATES

Custom made to "fit" your Roof. A wide choice of distinctive Color Combinations. Quality, Price and Service unequalled.

F. C. Sheldon Slate Co., Granville, New York

CON-SER-TEX



This Is Your Opportunity to Make Extra Profits This Fall

Use roofing material that gives service and satisfaction, that costs less than most others, is easy and inexpensive to lay, and that makes a neat and durable surface.

On Repair Jobs or New Buildings

your estimates will be much lower, your profits bigger if you use

CON-SER-TEX CANVAS ROOFING

It is a canvas roofing chemically treated to protect the fiber from mildew, and the detrimental action of the oil in paint. It's water-proof, weather-proof, wear-proof.

INVESTIGATE—samples showing widths, weight, prices and complete details sent upon request.

Wm. L. Barrell & Co.

8 Thomas St., New York City

Branch Offices

Chicago Distributor: Geo. B. Carpenter, 430-40 Wells St.

California Distributors: Waterhouse & Price Co., Los Angeles; The Pacific Building Materials Co., San Francisco.



Local Home-owners will thank you

If You Recommend and Install MORGAN Storm Protection before Cold Weather

Anything you can suggest that will help local home-owners beat the high price of coal this winter will win their hearty appreciation.

MORGAN Combination Storm and Screen Doors, and MORGAN Storm Sash prevent cold houses, drafty rooms, insure perfect ventilation and comfort wherever installed. They keep the cold out and the heat in. They make for lower fuel costs and better health. Cash in on the season's opportunities NOW.



Stands Back of Your Satisfaction Guarantee

Like every MORGAN Product—Morgan Storm Doors and Storm Sash are thoroughly built—of selected, well-seasoned stock. And they carry the regular MORGAN guarantee.

There is a wide array of standard designs to offer your prospective customers.

Get Your Copy of Morgan "Cold Weather Protection" Booklet

Every progressive contractor should have this booklet early. Send for it today.

Morgan Sash & Door Company

Dept. 77. Chicago, U. S. A.

Morgan Co., Oshkosh, Wisconsin
Morgan Millwork Co., Baltimore

(Continued from page 132.)

good sleeping quarters, sewing rooms, billiard rooms, studies, etc.

There are thousands of women who are disgusted with the old soft wood flooring. Why not help them to beautify their homes at an economical basis and bank the extra dollars you earn against the proverbial rainy day that is said to be in store for all of us.

Marshall Field and Finance

Probably the wisest financiers in Chicago are the managers of the Field estate. They began on Sept. 17 to tear down a four-story block of buildings on the corner of State and Lake Sts. to erect the handsomest theater and office building in the West. Watch it during the coming winter months, and note what can be done in winter construction. Incidentally, I venture the opinion that they did not begin work at that time by chance.

Looking Forward

The most imaginative reader I have cannot begin to vision the demand that there will be for skilled workers after the war to rebuild Europe and catch up with the normal situation in America and England.

Birmingham, England, is short from 10,000 to 20,000 houses today. It is estimated that 5,000 houses will have to be built annually at a yearly expenditure of six millions of money.

Two thousand houses are under construction now at Akron, Ohio. The opportunity for the man who can direct—can oversee—can plan—are going to be phenomenal.

Are you preparing for a big job? I am ambitious for my boys—for my readers—and I hope that all have their eyes on the big things.

Yours very truly,

THE MAN FROM THE LUMBER YARD.



How Camp Devens was Built

(Continued from page 43.)

To him then the foremen sent in requisition slips for the number and kind of men each wanted, just as if they were ordering nails or shovels. Smith would toll off a bunch of laborers or carpenters, put them in charge of one of his boys who knew something about the vast camp, and charge him with delivering them at the point where the foreman's superintendent's office assistant reported that foreman to be working at the time.

During the first few days, before the work gathered volume, enough men came in from the town of Ayer and nearby districts and cities to handle the beginning of the work. But the contractors, and especially Smith, who was the particular Ley man responsible for keeping a supply of men ahead of those requisition slips, knew that soon they would need to draw from more distant places. Advertisements in the papers of

(Continued to page 136.)

Royal Ventilators



Farmers know the value of ventilation. Put **Royal Ventilators** on every barn you build and you have done your best. They give satisfaction and please clients.

The **Royal** will stand any strain; proof against storms, leaks, birds and insects; exerts a steady up-pull on foul air and introduces fresh air without down-draft. Double Cone an efficient feature.

Made for every purpose. Will please in construction, appearance, efficiency and price. Send for our Catalog.

ROYAL VENTILATOR CO.
417 Locust St. Philadelphia, Pa.

CHIEF ALL-STEEL CUPOLA

New-improved, scientifically designed ventilating cupola for all buildings. Up-to-date in design, material and construction. Used and approved on hundreds of farms. Made of heavily galvanized steel with base strongly braced. Can't rust, rot, or blow off. Absolutely storm-proof and bird's-nest proof.

Easy to Install—Sure to Please Your Customers

Chief Cupola saves time and labor installing—base bolts directly to roof and cupola bolts to the base. Only six bolts needed. Meets all requirements—insures adequate ventilation—satisfies all users. Write for full description, prices, etc.

Shrauger & Johnson Co.
430 Walnut Street, Atlantic, Iowa



GET ALL THE PROFIT

Shipped Ready to Install

Easy to Erect



Your reputation and future orders depend upon the equipment you recommend. Don't take a chance. Get the present and future profit by recommending and equipping the barns you build with

O-K Cupolas

Every one you erect adds to your reputation. They solve the barn ventilation problem and sell themselves. **O-K Cupolas** are neat in appearance. Bird, storm, rust and rot proof. Made of heavy galvanized steel. Cost no more than the ordinary kind.

Special Prices to Contractors and Builders where we are not represented

Write for full particulars of this and other money-making specialties

Phillip Bernard Co.
2400 Floyd Ave. Sioux City, Iowa

Large Profit in Air and Light

The certainty with which **TIP TOP** Ventilators and **TIP TOP** More Sun Windows decrease disease and losses and increase quality, production and profit deserves the attention of progressive dealers and contractors, as every stock raising farmer should have them.



This is an opportunity for all to be benefited financially. Make money and help your customers prosper. Act now. Dealers and contractors ask for our co-operative plan.

Anderson Mfg. Co.
Des Moines, Iowa



Carpenters find a profitable field among owners of farm buildings.

Owners of Dairy and Cattle Barns are already converted to the necessity for proper ventilation, and it takes but a few moments to prove the advantages of

"GLOBE" VENTILATORS

"GLOBE" Ventilators are in use throughout the country on farm buildings because of their efficiency at all times. They are simple, silent, storm-proof and will last a lifetime.

Each installation gives the carpenter an attractive profit. Complete information sent on request. Please address Department F.

Globe Ventilator Co.
TROY, N. Y.



Willis Ventilators

All Sizes

Metal or Glass Tops

These Ventilators insure greatest efficiency in exhausting foul air and substituting fresh air. Provide a constant circulation without draft. Rain, snow or birds cannot enter. Fitted with dampers to control flow of air. These ventilators are of the highest quality for use on any type of building.

Write for Catalog No. 7 illustrating our entire line

WILLIS MFG. CO., Galesburg, Ill.
Dept. "B"

Manufacturers of

Skylights, Fire Doors, Metal Windows, and all Architectural Sheet Metal Goods

(Continued from page 134.)

all the surrounding cities attracted a great many individuals and a few clumps. Many groups of Italians came in under the tutelage of one of their number who had gathered them, and who offered the services of the whole gang provided he were taken on as foreman. The reply came back that the Ley company was appointing its own foremen, not having them wished upon it, and the promoter might take his gang and go, or stay as a laborer, or they might stay on their own account. This last they always did.

But these methods were too haphazard. There would be need of dependable large sources of real workmen. So the company called a convention of labor unions from all the cities within a hundred miles, at Fitchburg. Now Boston men would be a considerable factor in building the camp, and Boston rates were high and hours short. Of course, the job was under the jurisdiction of the Fitchburg unions. But it would not do to have the Boston men dissatisfied by cutting their usual wages. On the other hand, paying Boston men high wages by exception to others would

not content the others. But by mutual concession between the company and the unions, it was agreed that:

This was to be a union job.

On the other hand, the unions undertook to furnish all the craftsmen needed, at call.

Boston rates per hour would be paid everybody.

Fitchburg unions would retain jurisdiction. Soon the international representative of the A. F. of L. came to the camp and was of great aid in speeding things up. Under the laws of the United States this being government work, an 8-hour day was necessary, but President Wilson made a special exception on account of the rush and allowed overtime work to be paid for at time and a half.

Thus uniformity was secured at a compromise, the Boston men giving up their 44-hour week with double time for overtime, and everybody being paid the same. The working day in practice was ten hours, two hours of which was overtime, so that it drew 11 hours pay.

Whenever it was necessary to get a building done

(Continued to page 138.)



WORKS OF THE H. B. IVES CO., NEW HAVEN, CONN., U. S. A.

THE H. B. IVES CO.

NEW HAVEN, CONN., U. S. A.

ESTABLISHED 1876

INCORPORATED 1900

MANUFACTURERS OF

BUILDERS' HARDWARE

HIGH GRADE WINDOW AND DOOR SPECIALTIES

Write for Illustrated Folder

Our Free Plans Will Help You—

Meadows
TRADE MARK REGISTERED

Don't figure on any crib or granary without consulting our Free Plans. They will show you how to get greatest capacity at least expense by installing Meadows Inside Stationary Cup Elevators.

The most convenient and economical elevators, carrying small grain as well as ear corn.

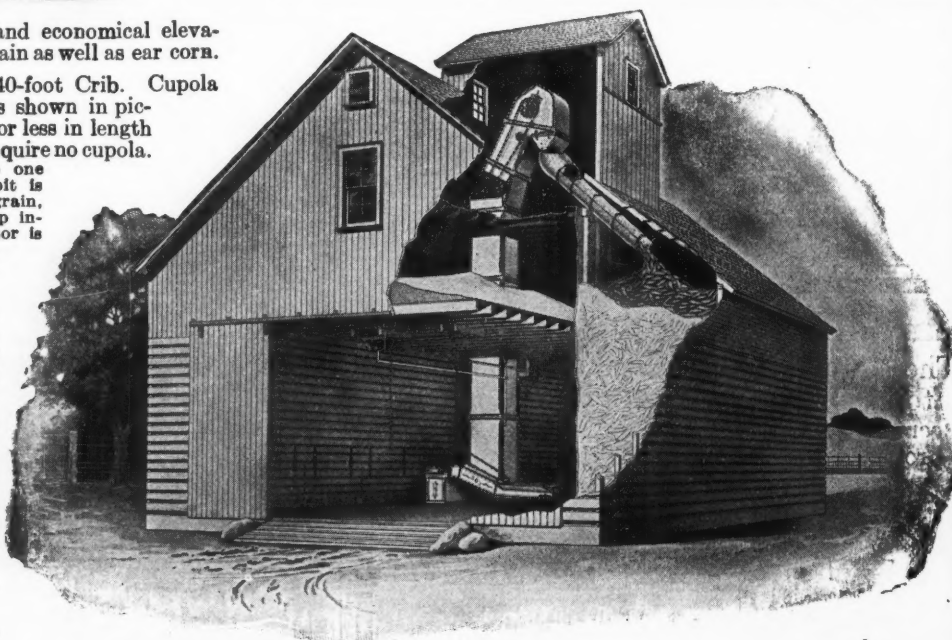
The picture shows a 40-foot Crib. Cupola need not be as large as shown in picture; the cribs 36 feet or less in length with half-pitch roofs require no cupola.

Elevator is confined to one side of driveway. No pit is necessary for dumping grain, just a hole 16 inches deep into which boot of elevator is set. The wagon jack is entirely overhead, fastened to the joists.

But write in today for our free Crib and Granary plans, catalogs and large posters telling all about our outfits and their application. Valuable information for the builder, and writing for it obligates you in no way.

**Meadows
Mfg. Co.**

Pontiac, Illinois



"Garage with Pergola Features"

and other suitable things for beautifying home grounds.

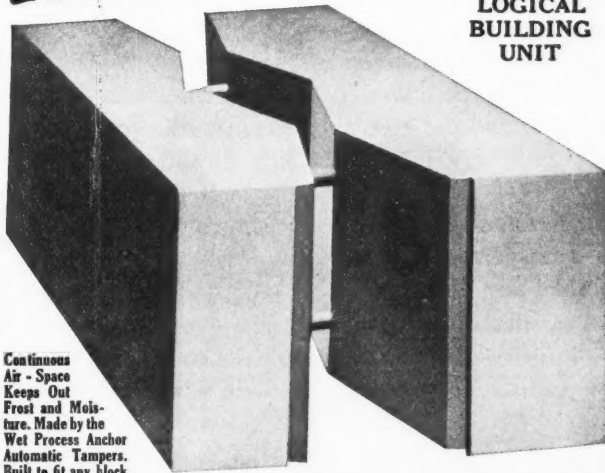
If interested enclose 10c and ask for Catalog No. "U-30."

**Hartmann-Sanders Company**

Chicago Office, 2155 Elston Ave. New York City Office, 6 E. 39th St.

ANCHOR BLOCKS

YOUR
LOGICAL
BUILDING
UNIT



Continuous
Air - Space
Keeps Out
Frost and Mois-
ture. Made by the
Wet Process Anchor
Automatic Tampers.
Built to fit any block
machine.

ANCHOR CONCRETE STONE CO.
ROCK RAPIDS, IA.

Write for Big Catalog and Special Offer to Contractors & Lumber Dealers

\$60 A WEEK AND THIS FREE AUTOMOBILE

Backed by
10-Year
Gold Bond
Guarantee



Exclusive Territory
100% Profit

I OFFER this Big Money and a FREE Automobile to one hustling Representative in each county in the U. S. This is not a contest. Every agent can get a FREE Automobile and \$60.00 a week. You don't need experience. I want you to advertise, sell and appoint sub-agents for the Robinson Folding Bath Tub. It's a whirlwind seller. Solves the bathing problem. No plumbing, no waterworks needed. Full length baths in any room. Folds in small roll. Won't leak. Self-emptying. Ten-year Guarantee. Rivals \$100 bathroom. Never such a big seller, never such a big money maker. Never such a liberal offer as this. Think, \$60.00 a Week and FREE Automobile.

Sensational Sales Successes

It's easy. You can do it. J. H. Brown, N. J. says: "14 calls, 14 sales. How's that?" (\$70 profit). R. C. McCartney, Mich. says: "Sold 5 tubs in 15 hours." (\$25 profit). "Sold 6 from noon to night," says J. A. Hembs, S. D. (\$30 profit). Ned Bolle, of Idaho, sold 8 first afternoon. (\$40 profit). H. M. Velzy, N. D., sold 10 in 3 days. (\$50 profit). W. A. Gloeckler, S. D., sold 11 in three days. (\$55 profit). A. R. Engle, Mont., got 11 orders in 2 1/2 days. (Addresses furnished on request). You can do as well as these men. You can sell 2 a day. That means \$60 a week, clean profit, and a big, speedy Touring Car Free. Little capital needed. I grant credit to deserving men. Furnish you with a Demonstrating Tub, on liberal plan. You can't lose. 70 per cent of the homes have no bathroom. They need the Robinson Tub. Just show tub; take the order. Quick sales and immense profits. This is YOUR chance. Don't delay. Get busy. Write today for Demonstrating Tub and FREE Automobile offer.

H. S. Robinson, President, The Robinson Cabinet Mfg. Co.
4745 Factories Building TOLEDO, OHIO

IF YOU DO NOT FIND WHAT YOU WANT

in the AMERICAN BUILDER, write us and we will try to get it for you.

No Ice Needed—in Winter Filled From the Outside in Summer**The Herrick Outside Icing Refrigerators**

Most Popular for Modern Homes

Saves more ice, gives more space in the kitchen and does away with the tracking of floors.

This refrigerator requires no ice in the winter. It is cooled by cold air. The Herrick is so constructed that a compartment may be opened from the outside of the house. Cold air thus enters the opening, forces circulation and keeps the contents of the refrigerator cold and pure.

And we furnish FREE PLANS showing how the Herrick saves a great deal of kitchen space by being built into the wall so that only the front is visible. The housewife will appreciate this saving just as much as the ice-saving feature. And here is another point equally important: The Herrick does away with the annoyances of the iceman's visits to the kitchen and the soiling of the floors by his always muddy feet and dripping ice. Any woman who takes pride in a tidy kitchen will not only be interested in—but will demand the Herrick.

No progressive builder can afford to be without information on this modern convenience. Suggest it to your customers before they suggest it to you. It will add to your reputation as a conscientious, up to the minute builder and will get you more jobs. Write for our free plans and our complete catalog.



HERRICK
DRY AIR SYSTEM
REFRIGERATOR

The Herrick is Approved by Good House Keeping and New York Tribune Institutes

Herrick Refrigerator Company,

Waterloo, Iowa

NO PAINT can be any whiter than the white pigment from which it is made. It can be made darker, or it may turn yellow if adulterated oil is used, but it can't be any *whiter* than the white pigment.

Carter White Lead contains no zinc. It needs none to make it white. In the manufacture of Carter White Lead nothing is used, and no foreign matter is ground up with it, that can discolor it. And because it contains no hard inelastic extenders, Carter Lead with pure linseed oil makes paint which will expand and contract with the wood surface it protects during temperature changes. That is why it is so obviously impossible that you will be confronted with cracking and scaling paint a few months after completing a job primed and finished with pure paint.

Every house painted white with Carter is a lasting advertisement for the contractor. It is visible evidence of his good judgment and care in choosing materials according to their fitness for the purpose.

The beauty of a white house is in having it *white*. People notice and appreciate the whiteness of Carter.

Carter White Lead Co.

West Pullman Station "B"

CHICAGO, ILL.

"The **WHITE** white lead"
makes
WHITE white paint



(Continued from page 136.)

with extra speed, search lights enabled men to work at night.

Laborers were paid \$3 for an eight-hour day with time and a half for overtime. Their working period came to be the same as that for the mechanics, or ten hours with 11 hours' pay, making \$4.12 a day. This was good pay, and the news of the job spread by underground railroad to the surrounding cities rapidly enough so that an adequate number of men floated in to accomplish the early stages of the work while the camp was growing to need men from larger sources.

To get this larger volume of laborers, the contractors paid a well-known Boston banker, Mr. Ferrullo, a salary to organize a scouting force for them which he sent out to the chief cities in Massachusetts, Rhode Island and Maine to pick up men. This was successful, and there was never any difficulty in getting men.

Just the same, the number necessary kept the employment man busy. During the rush season he hired as many as seven hundred men daily. Two or three hundred of these would be carpenters, three hundred laborers, and the rest plumbers, pipers, linemen, time keepers—every imaginable sort of man except book agents. If any of these came in they had a carry a hammer and saw to get by, and they had to use them to get transportation back home, because nobody on the job had any time to read books.

That this method of hiring men was successful may be inferred from the fact that the barometer of drunkenness has always been, and is yet down to the vanishing point. Also it may be inferred from the speed of the work.

Wherever you have a thousand men on hand, one thousand coming, and more in the offing, you have to have two things immediately—water, and sanitation. This job was done under the eyes of the United States government, and right on the ground are its army physicians who are absolutely strict on sanitation. Thruout the work they have inspected everything, both because they knew how to safeguard the health of the laborers, and because any epidemic which might have started in the camp during construction would inevitably have spread to the future regiments of soldiers. At first, when there were not so many men employed, toilets which were rows of covered holes in a bench above a trench were good enough. The bench had a back-rail which served as a back-rest like that of any ordinary bench, but it was set just so far forward that the covers could not be opened quite to the vertical and would be forced to fall back into place. Once a week oil was thrown into the trench and set afire, so that the interior was burned out clean. Every few weeks the whole superstructure and bench was moved back to another trench, the former one being filled in. This treatment was so thoro that no flies collected around the trenches or

(Continued to page 140.)



Something to be proud of

Folks who have Victor Outdoor Above Ground Acetylene Generators are proud of their home. They take pleasure in inviting people to visit, play cards, etc., in a home that is lighted as brilliantly—as pleasingly—as the finest city homes.

Many lighting systems have striven for commercial supremacy on the market. Some good, some bad—some hopelessly bad. The best have survived the test of time. The Victor system is one of them.

Here are some of the reasons why "Victor" is considered a highly practical and worthy investment.

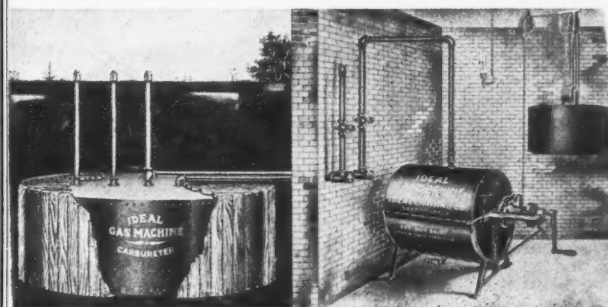
- (1) Requires a minimum of attention (supplying tank with carbide three times a year.)
- (2) Not only provides finest illumination of houses and barns but also supplies excellent cooking fuel and heat for ironing.
- (3) It is perfectly safe—fool-proof and weatherproof.
- (4) The cost of operating is very small.
- (5) It's first cost is not prohibitive.

Do this, Contractors!

Write for a complete description and prices on the Victor System so that when the opportunity comes you can sell your client this high grade lighting and cooking system.

As a selling proposition, the Victor Outdoor Above Ground Acetylene Generator has so many advantages—it sounds so good—that no prospect can remain indifferent to it.

Moore Brothers Lightning Rod Co.
Maryville, Missouri



Individual Gas Plants

Here is the surest, simplest, cheapest and most efficient method of lighting and cooking for country clubs, country homes, churches or public halls. Its convenience is readily appreciated by the average person. The country home equipped with an Ideal Gas System will always have an abundance of light (any time of day or night) that is the nearest approach to sunlight of any known method of illuminating.

Gas lighting by our method is the cheapest means of illumination in existence. One barrel of gasoline (about \$15.00) will furnish gas for the average sized family for from six to eight months.

The lighting need not be confined to the house. The system can be run to the garage, barn or any out building. Gas irons, water heaters, gas ranges can be operated by it.

Write us stating your requirements or have one of our representatives call on you. No contract too small for us—none too large.

We have a Special Agency Plan for contractors. Write for prices.

CHARLES G. WITT

Successor to
Ideal Lighting Co., 510-512 W. 3rd St.
DAVENPORT, IOWA

Carpenters

Make \$50 a week in spare time.

Get the exclusive agency for Akron Lighting Systems, portable and street lamps and lanterns.

Write Today

AKRON Independent Lighting Systems
Supply gasoline under pressure through hollow wire to lamps all over the house, and to gasoline stove. Our system is absolutely safe.
Sheds a soft, steady, brilliant, white light of high candle power. Makes the home attractive and reading a greater pleasure. Better and cheaper than any other illumination.
Complete line of "Akron" portable and street lamps and lanterns. Latest types; latest improvements; safe and simple construction; 18 years of success.
Agents Wanted
in unoccupied territory. Handy demonstration outfit. Our proposition to live hustlers cannot be beat. Write for catalog and terms. Akron Gas Lamp Co., 633 So. High St., Akron, O.

Comfort Indoor Closet

Odorless Sanitary Germ-Proof
No Sewer — No Waterworks — No Plumbing Needed

This modern home necessity is fast taking the place of the unsightly, unhealthy, inconvenient outhouse in the back yard. Thousands now in use and all giving complete satisfaction. Can be put wherever convenient in the house. No odor whatever. Gives city convenience in the country or town.

Abolish Outdoor Closet

Anybody can afford one. Saves those cold night trips out-of-doors. Impossible to get same amount of comfort for the money another way. Sold on 30 days' trial and under sworn guarantee to refund all money if not entirely satisfactory. Send for description and prices today. Be fair to your family.

Agents Make Big Money Easily

Comfort Indoor Closets sell themselves as fast as people understand about them. Contractors and carpenters are making big money by merely suggesting this closet.

Write for details of this exclusive agency offer. Send postal now before somebody else gets your territory.

Comfort Chemical Closet Co.
310 Factories Bldg. TOLEDO, OHIO



Mr. Builder: Increase Your Income Right Now—This Month

Here's something right in your line—a Chemical Closet that you can sell to a home builder cheaper than a wooden privy and make a bigger profit for yourself. Here's something you can sell at odd times or turn over to your son or your foreman to sell.

RO-SAN Chemical Closet

An absolutely sanitary, odorless indoor closet that may be placed anywhere in the house. Abolishes the germ breeding out-door vault. A comfort and convenience when there is no sewer connection. Germs killed by chemical. Easily emptied as the ash pit of a stove.

AGENTS WANTED

We want one live carpenter contractor in each town to act as our agent. Hundreds of builders are selling these fixtures. Good profit for little work. We help you sell them. Write today for complete details.

ROWE SANITARY MFG. CO.
910 Rowe Building Detroit, Mich.
Ask about the Ro-San Washstand. Hot and cold running water without plumbing.



(Continued from page 138.)

toilets. Even on a hot day flies were noteworthy by their absence.

A full system of water supply mains and sewers was at once started. Indeed, Mr. Crowley commenced actual work on both the 20th of June, two days after he arrived. He made one man superintendent of the water system work, and picked another man as superintendent of the sewer work. Each was supplied with foremen and men as fast as they were needed and as fast as they came.

Tools had been ordered in quantity, but while waiting for the quantities work had to be started with a few. The main thing at the beginning of this job was to get each thing started and then help it grow. But it could never branch out and get bigger unless the point of departure was set as quickly as possible. Now was the time to start everything possible, because later on the general superintendent would be busy starting something else. Therefore, he needed tools for the job—some tools, any amount, no matter how small. Late Saturday night of the 17th he had located a few tools by telephone. Sunday he jumped into a small truck and went to Boston after them. These were loaded into the truck and after midnight of Sunday, he himself drove them back to Ayer so as to arrive before the first workmen Monday morning at 7. When the first batch of workmen got there tools were waiting for them. They did not have to lie around loafing,

but could be initiated from the beginning into the style of work they were expected to adopt.

Mr. Crowley's idea thruout, evidently has been to give the men tools as the first incentive to work.

To take care of the immediate expansion which was coming in the number of tools of all sorts, a tool house was built beside the railroad track. Whether the railroad was visible at the time or not, is a question, but anyway, the toolhouse was built beside where the railroad was going to be, and now is. If the carpenter foreman in charge of building the tool house did not hurry up, he would find Crowley's railroad foreman putting in tracks ready for the new yardmaster to send down the car of tools which were to be unloaded directly into the tool house, supposed to be ready for them. The ideal timing would be for the tool house to be finished just as the car rolled down to the door one rail length behind the railroad track layers, with one of Ley's newly hired brakemen aboard to keep the car from rolling off the ends of the rails upon the ground. This sort of timing was carried out regularly in similar undertakings thruout the camp construction, being regulated by adding any needed men or gangs of men to the department which obviously needed them in order to keep even with the rest and reach the economic focal point at the same time.

A foreman was placed in charge of the tool department. Tools were to be issued only on requisition and

(Continued to page 142.)



BEAUTIFUL OAK FLOORS

Builders are wise in using Oak Flooring for the reason it adds prestige to themselves and creates immediately the impression that all other materials used are of the same high standard.

Oak Flooring is durable and the most artistic flooring to be had. It is pre-eminent. Oak Floors are the source of unlimited satisfaction and pride.

Wherever Oak Flooring is used it means that it attracts better class of tenants and increases the selling and renting values.

Oak Flooring by right of superior merit and conquest is

AMERICA'S BEST FLOORING

$\frac{3}{8}$ " Oak Flooring offers excellent opportunity for the carpenters during the winter months when outside work is dull. All that is necessary to secure jobs is some soliciting. Every woman wants Oak Flooring, as beautiful Oak Floors and rugs simplifies housekeeping and house cleaning.

Write for folders on how to lay Oak Floors and other valuable information.

Oak Flooring Service Bureau 1603 Union Trust Bldg., Cincinnati

BUILD Your Own Phonograph

It's easy with our help

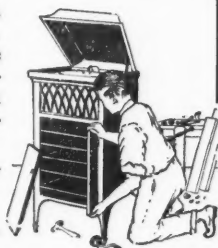
AND SAVE
OVER HALF

A few hours interesting work saves many dollars and gives you a machine exactly to suit your ideals. We furnish motors, tone arms, case material, blue prints and full instructions. Plays any record. You can make fine profit building phonographs for your friends.

Write today for our free blue print offer

Choraleon Company

1001 Monger Bldg., Elkhart, Ind.



Rust-proof nails

—the kind you must have if your nails are going to last. One wise building authority made the statement: "No work can live longer than the nails that hold it." Many so-called "galvanized nails" on the market are **not rustproof**. They are **not thoroughly** galvanized and consequently do not withstand the weather any considerable length of time. M. I. F. Co. Zinc Coated nails are heavily coated with pure zinc. We have many cases on record where M. I. F. Co. Zinc Coated nails driven more than 30 years ago are still in as good condition as they were at the time of construction.

MALLEABLE IRON FITTING CO. Branford, Conn.



THIS IS
THE HAMMER
WITH THE
PEDIGREE

OF COURSE
IT'S A

GERMANTOWN
MASTER BUILDER

Expert workmen the country round know and use this hammer. The finest possible quality in material, design and workmanship. Octagon shaped handle of second growth hickory, ideal hardness, and a claw that will grip all size nails with a grip that holds. Positively the **only** hammer for the workman who wants the BEST. Three sizes, Nos. 745, 11 oz., 746, 16 oz., 747, 20 oz., at \$1.50 each.

Price
\$1.50

Germantown Tool Works

PHILADELPHIA, PA.

Branch: 62 East Lake Street, Chicago



The oldest paint
manufacturing concern
in the United States
Founded in New York in 1754

For 163 years DEVOE has been making good paint.

This is indicative of the satisfaction DEVOE paints have given to innumerable customers for 163 years.

DEVOE paints are still made by the old-time painter's formula—pure white lead, pure white zinc, pure linseed oil, pure turpentine—AND NOTHING ELSE.

Time has proved that DEVOE "takes fewer gallons and wears longer."

DEVOE

*Maker of old-time
paints and varnishes*

DEVOE & RAYNOLDS CO., Inc.
New York and Chicago

*The original store at the corner of
Wall Street and Fletcher New York
City—occupied by William Post in 1754*



(Continued from page 140.)

signed for by the foremen. A special truck was used to deliver them on the job when needed. Gallegher, the tool man, would get his truck from the foreman of trucks, who had nothing else to do but hire, assign, and keep time on all the trucks needed. Trucks were requisitioned from him just as men were requisitioned from Smith.

To keep the tools in condition, a blacksmith shop was put in, back to back with the tool house. It was equipped with forges, a grindstone, drills, and iron cutters. Dull tools were brought in by the truckload, put into excellent shape again, and stored in the tool house ready for the next man. The man who brought or sent them in would not wait for the same lot, but would immediately get a new lot from the tool house man, which had previously been treated. This is a practical workout of the theory that to do good and fast work a man must have sharp tools.

Besides the blacksmith shop, small repair shops were located at sections of the grounds where a great deal of work was going on in a clump. The cantonment like all others was built on the United States general plan, which divides a camp into "units," each to take care of a regiment, and each to be far enough away from the next unit or regiment to prevent the spread of disease, should an epidemic, in spite of all efforts to forestall it, break out. At each of these units while

under construction a booth was erected at some central point, or perhaps two or three booths at separated points, and in each was stationed a saw filer, with a bench and set of equipment for his work. Any carpenter could have his saw filed here free of charge. If he didn't do it on his own initiative, the foreman would soon send him to have it done. When you are paying a man \$7 a day for himself and his saw, it behooves you to see that the saw is sharp.

When the unit is completed and work is started on another, the booth is loaded onto a truck and pitched in a new place.

Given the tools, work went fast. On Saturday, June 24, the last day of the same week that the four heads of departments came down, a water supply was connected up, and water was being drawn from pipes for the commissary and for the buckets of the water boys, as well as for a few concrete mixers which were in operation.

For the temporary water supply of the camp a small well was dug, and a water tower holding 25,000 gallons was set on a hill near the offices. The temporary piping from this tower down again to the supplies were two three-inch mains laid on the hillside, the only preparation for it being that for each line a little path of a yard wide and a quarter mile long was cleared of

(Continued to page 144.)

DEMING

answers the demand of present-day homebuilders for sanitation and household convenience. Install a Deming system before you finish every house job. Co-operate with your local plumber on the Deming plan—you sell the home owner the idea—your plumber makes the installation—you both take a profit. Get Deming water supply facts and installation suggestions and the special Deming proposition. Write now to

The Deming Co., 99 Depot St., Salem, Ohio
Chicago—Henion & Hubbell Pittsburgh—Harris Pump & Supply Co. Agents in all cities

No. 2010
Capacity 570 gallons
per hour



KEWANEE ALL-STEEL COAL CHUTES

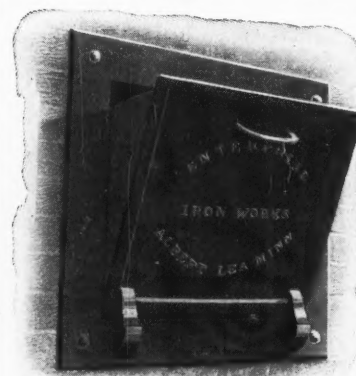


Five good reasons for installing the Kewanee. It locks automatically on the inside. Can be opened from the first floor by means of a chain in the lock. All steel construction, and cannot be broken. Guaranteed for five years. Easy to install in an old building as well as a new.

Write today for Contractors' and Dealers' Prices

KEWANEE MFG. CO.
KEWANEE, ILL.

The Enterprise Coal and Fuel Chute



A POPULAR Coal-chute for every building and at a popular price.

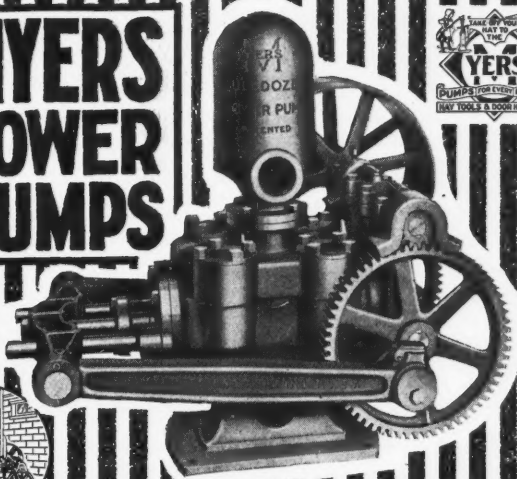
Conceded by all odds to be the easiest installed, easiest operated, and simplest Fuel-chute made—four pieces only—and a Complete chute: Frame, Chute, Lock, and Weight, which locks automatically by gravity.

Good money for the Contractor or Builder in any community.

Circulars and prices for the asking. Write today to

Enterprise Iron Works
Albert Lea, Minnesota

MYERS POWER PUMPS



What kind of Pumping Service are you interested in? If you require a Power Pump or Working Heads for inside or outside use, remember MYERS build high grade Power Water Lifters in many styles and sizes for pumping water from shallow or deep wells and cisterns, lakes, ponds and streams, and forcing it into open or pressure tanks, elevating it or pumping it long distances. Operation by gasoline engine, motor or any other power—and the name MYERS guarantees the service. *Catalog mailed on request.*

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ASHLAND PUMP AND HAY TOOL WORKS
ALBANY - HARRISBURG - MILWAUKEE - CEDAR RAPIDS - ST. LOUIS

A Cleaner Scraping For Your Floor— and a Bigger Profit for Yourself



Entire freedom from ruts, mars, scratches, waves, wheel depressions—however large the surface, you can make your floor smooth as glass, in much less time than is needed for hand labor, with the

Stearns

FLOOR SCRAPER

It gets into every corner, flush with the wall, the blades of highest grade carbon-tempered steel cutting evenly without waste. The two-edged knife allows turning when one side becomes dulled.

The Stearns Floor Scraper has movable handle and rubber tires. Simply and durably constructed to give the greatest floor scraping satisfaction at the lowest initial and upkeep cost.

E. C. STEARNS COMPANY
112 Oneida Street Syracuse, New York

Power Means Greater Efficiency

Mechanical power is becoming more and more important every day—labor is scarce and wages are high—every job that you can handle in quicker time and with less help mean bigger profits for you.

The Ideal Engine is especially adapted for the work encountered in the building field. It is of simple, compact design, very easy to understand and operate, requiring the very minimum of care and attention.

Requires very small floor space—light weight—easy to move about. The enclosed crankcase keeps out all dirt, dust and grit. Dirt-proof, frost-proof and fool-proof.

Special Equipment for Carpenters and Builders

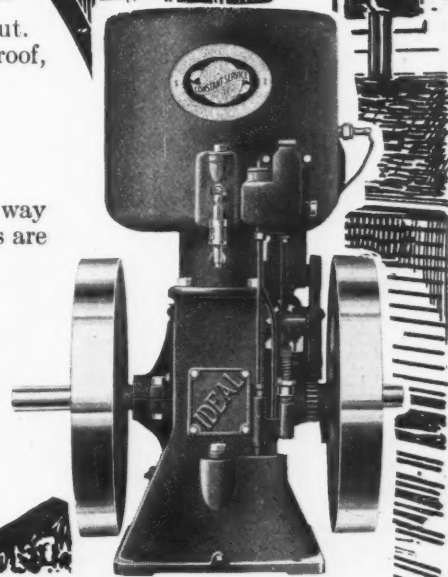
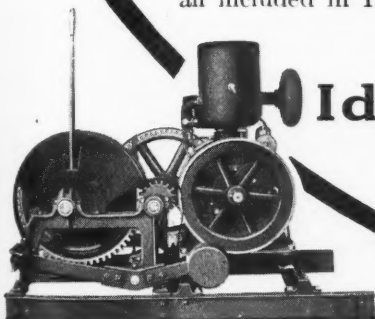
Single drum reversible hoists, double and single drum one way hoists, force pumping outfits and diaphragm pumping outfits are all included in Ideal Special Equipment.

For Complete Details and
Specifications Address

Ideal Engine Co.

R. E. Olds, Chairman

630 E. Kalamazoo St.
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MUELLER PIPELESS FURNACE

Will Make Big Money for You

YOU can make big money for yourself and insure complete satisfaction to your customers by installing the **Mueller Pipeless Furnace** in new and old houses. The big demand for the **Mueller Pipeless Furnace** has opened a new field of profits for contractors, builders and furnace men. Thousands of dwellers in stove heated homes are having it installed. It is also a practical, efficient and decidedly economical method of heating modern homes of medium size. You can install it in one day.

The **Mueller Pipeless Furnace** is dominating the "single register" heating field because it possesses the unequalled heating efficiency and fuel economy of the nationally known **Mueller Warm Air, Hot Water, Steam and Vapor Systems**, and has behind it the sixty years' reputation of the **L. J. Mueller Furnace Company**. It is a **real** furnace, of exactly the same construction as the old reliable **Mueller** line, but without pipes or flues. It heats the whole house comfortably, cleanly, economically and dependably from one register. Burns hard or soft coal, coke or wood. Saves 35% in fuel.

Extensive advertising has made the **Mueller Pipeless** well known. Contractors, builders and furnace men everywhere are profiting by the big demand. Get in on this now and get your share. Write at once for our proposition.

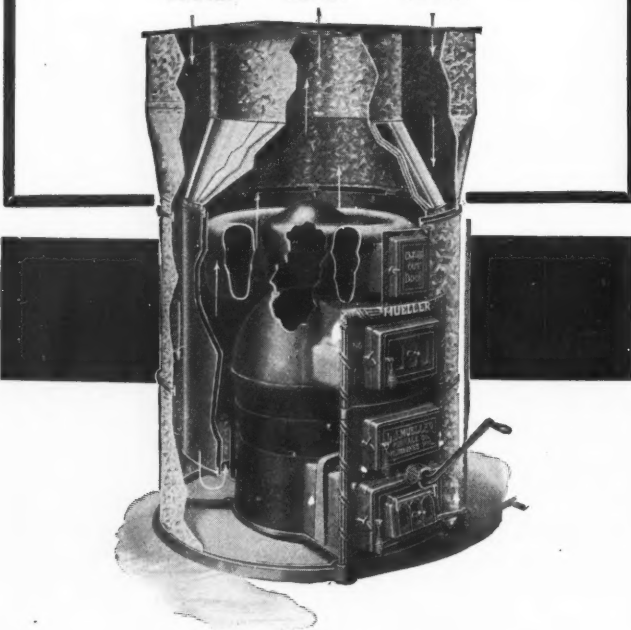
L. J. Mueller Furnace Co.

218 Reed Street, Milwaukee, Wis.

Makers of Heating Systems of all kinds since 1857

Consult, free, our expert service bureau on all your heating requirements—get our estimate on all your heating installations

Cold Air Hot Air Cold Air



(Continued from page 142.)

brush and graded with shovels.

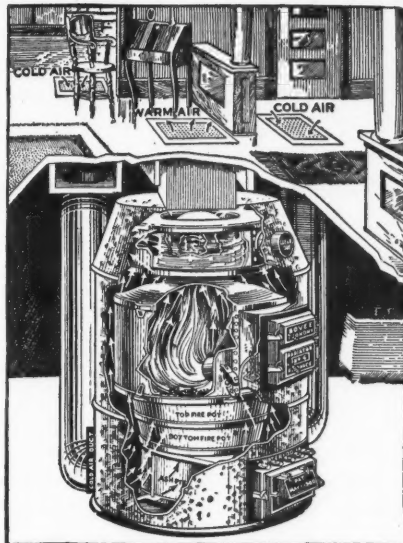
The first water for the commissary had to be fetched in tanks and barrels on auto truck from the town of Ayer. The knowledge of this was constantly present in the mind of every member of the water department, and he was determined that this condition should last no longer than necessary. With this attitude of mind, backed by the tools and the transportation facilities, the digging gang flung up dirt, the pipers followed as close as practicable behind them with their miles of pipe, laying a mile a day, and the coverers' gang closed in behind them. The foremen did not crowd their men. With pipers ready to occupy the trenches on top of them, the diggers just naturally dug. With the human craving to torment the diggers, the pipers were eager to begin, and with the other shoveling gang shooting remarks from behind them about snails and tortoises and making room for a real gang of real men, they were eager to finish. The rule worked: supply the tools, supply the material, supply a sufficient gang to do the preparatory work and keep in front. Then supply the gang who are to do the following process, and the one after, and the work will go thru like a train thru a tunnel. It is the duty of the head of department or the general manager to guide the work as a train master runs trains.

Besides water and sanitation and barracks, one more thing is needed for the men, and that is food—food in the shape of regular daily "feeds." Within a few hours after Fred T. Ley knew he had the contract for building the cantonment, he arranged with Harry Baldwin, a friend and neighbor of his in Springfield, who runs the Phoenix, Massasoit, and Baldwin lunches in Springfield, Hartford, New York, and elsewhere, to take care of the feeding proposition. Mr. Baldwin has his affairs in such good shape that he can let restaurants already established run themselves for a while. He could also spare a very few executives from his organization. The Ley company now practically hired him and his whole organization, or such part of it as would be necessary to start and run a commissary big enough for from five to ten thousand men.

On Friday, June 23rd, after the laborers had been eating the town of Ayer out of house and home for a week, Baldwin and three of his men, including Dunlap his company's president and engineer, came down to the camp, bringing sandwiches and bottled soda which they ate sitting on the grass of the site they selected. That was the start of Baldwin's Ley commissary, which soon was serving eighteen thousand meals a day in a clump of three restaurants, besides those who ate from six or seven scattered booths at distant units of the work. The way in which the commissary expanded to meet the sudden tide of increase in the needs of the camp with the increase of men is a story in itself. It was simply up to Dunlap to supply the buildings, to Blodgett to purchase and deliver the supplies

(Continued to page 146.)

BOVEE'S PIPELESS CENTRAL HEATING SYSTEM AND OTHER FURNACES



Every home can now have a first-class high-grade heating system in an old house as well as new. Heats as much as three large stoves. Costs but little more than a good stove.

We furnish either our UPRIGHT FURNACE for burning hard coal, soft coal or wood; or our HORIZONTAL FURNACE with large doors 16x16 inches for burning 4-foot wood or soft coal.

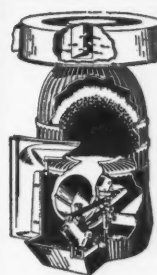
Either style furnace furnished in any size necessary to heat the house.

UNUSUAL SYSTEM WITH PIPING TO EACH ROOM FURNISHED WHEN DESIRED. Write for our three color catalogue, free.

BOVEE FURNACE WORKS

210 Eighth St.

Waterloo, Iowa



Cut-Out View of UNDERFEED Furnace

Cut Coal Cost 1/2 to 2/3 Guaranteed

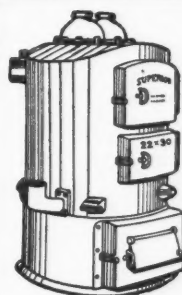
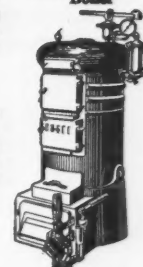
Yes, absolutely guaranteed. Over 40,000 Williamson UNDERFEED Furnace and Boiler users are enjoying UNDERFEED saving and comfort season after season.

Free Book Tells How

A postal brings it to any carpenter, builder or contractor. Book pictures and explains it all. Write for it NOW and learn how you can guarantee this great saving to your customers.

The Williamson Heater Co.
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UNDERFEED Boiler



The Superior Heating Boiler for Hot Water Vapor or Steam

The Modern Method of heating your residence. Insures comfort in every corner of the house in the coldest zero weather.

It Will Pay You to Investigate this Boiler before buying.

Our Estimates and Plans are Free

"A Complete Line of Plumbing and Heating Material"

DUPLEX MANUFACTURING CO.

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SUPERIOR, WISCONSIN

PHOTOS WANTED of Advertised Goods in Use on the Job

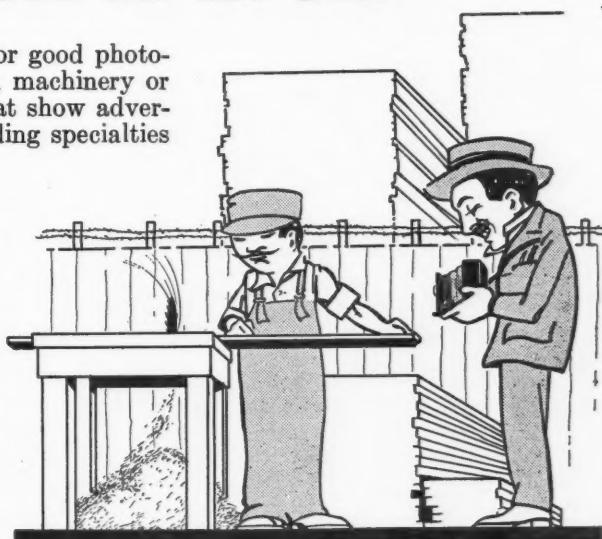
THE EDITOR will pay \$2.00 each for good photographs that show interesting tools, machinery or equipment in use by builders or that show advertised building materials, fixtures, or building specialties being installed on the job.

We want human interest pictures—close-up photos that show the details of the tool, device, machine, or material. We want it posed true to life, just as actually used.

On the back of each photo submitted jot down your name and address, trade name and manufacturer's address of proposition illustrated, and some data regarding the building where photo was taken.

Address Photo Contest Editor

American Builder
1827 Prairie Ave. CHICAGO



"I'll Send this Photo to American Builder and Get \$2.00"

(Continued from page 144.)

of food, to Baldwin and his executive heads of departments to hire the men and make the arrangements. The chef, by the way, was hired with his whole staff of assistants entire from Billy Sunday's restaurant in New York, which was just about to go out of existence because the Rev. Billy had finished his job of converting New York or was tired of it and planned to move on. The chef, however, had to hire twice as many additional men when things began to hum at Ayer.

For the sake of the Italian laborers, one of the three restaurants adjoining the big kitchen was denominated an Italian restaurant, and Italian waiters hired to serve spaghetti, Italian bread and European beans in addition to all the dishes on the menus of the other restaurants. The Italian restaurant became so popular with American employes that American waiters were spaced between Italian waiters alternately. The Italian customers themselves bought the best and a lot of it, and were willing to pay for it, possibly because it was done in their own fashion. Their good feeding may have had something to do also with the high recommendation that the superintendents give them as having entered into the spirit and pace of the camp construction and worked with zest and tireless energy.

For the first fifteen days the workmen ate in a tent hired from a circus to house the new commissary. Then one of Ley's carpenter foremen and his gang were assigned for a few days to build the commissary houses, with halls seating 3,700 men and kitchen and

store houses which took up even more space than the eating halls.

Everything was now ready for the men. Of course, construction had been going on all the time, with the different departments limbering into shape and always growing in efficiency. One of their practice pieces, the first large thing to be done in the actual wooden building line, was a row of a couple of dozen barracks for workmen, divided off into "staterooms" each of which had a plain wooden door and a hinged section in the wall opening outward and upward in front of a barrier of hen wire. No windows shut out the air when the wall-section was open, or let in light when it was closed down. The workmen, however, got along finely in these commodious and scrupulously clean quarters. Near the end of each barracks is a wash sink thirty feet long with faucets at intervals of three feet. Farther away are separate latrines and shower bath houses of several showers apiece, one latrine and one bath house for every two barracks. Few workmen were ill during the summer.

Given the men all satisfied and in condition to do work, what ought to be present to meet them is the material. Getting the material into Ayer was up to the purchasing department. From the plans of each building a list of the material necessary is taken off. This work started in Springfield, in the office of the chief engineer, Mr. S. W. Moore, as soon as the draftsmen began to turn out detailed plans from the

(Continued to page 148.)

Clean Air Heater

One Register System
Big Money for You

One installed sells many more. Buy direct from Manufacturer — Save Money — Secure Satisfaction.

- Efficient
- Economical
- Practical

Guaranteed by Two Year Trial Bond.

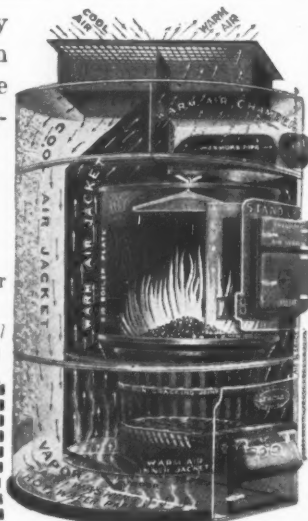
Write Today for our Special Proposition to Contractors

MAIL TODAY

Standard Heater Co.
438 W. Ontario St., Chicago
Send me your Special Agency Proposition to Contractors.

Name.....

Address.....



STANDARD HEATER CO.
438 West Ontario Street
CHICAGO

The Modern Way

A Real
**PIPELESS
FURNACE**

A Proven Success

The live contractor and builder looks out for dull days, when the construction work becomes quiet.

The Pipeless Furnace, now thoroly tested and tried, has proven an entire success.

It is easily installed, and offers a splendid proposition to the contractor who will take up the age old. No special tools or experienced man need to install them. Fully guaranteed.

So Completely Simple
So Simply Complete

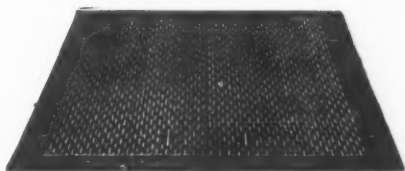
Write for territory and full information today.

The Modern Way Furnace Co.
(Inc.)

Offices: 7th Floor Shoaff Building
Fort Wayne, Ind.



Contractors Smile with pleasure



When they see that Canton Side Doors are being installed on the job. They are experts and do not hesitate to recommend the Canton Door as the only possible door for their jobs.

WHY IS THIS SO?

Because the careful workmanship and the construction of the Canton sidewalk door, coal chutes or anything in the "Canton" line gives it a world-wide reputation.

This Canton Sidewalk Door is absolutely burglar-proof when closed. The top is made of the best wrought steel, and is protected when open by stay rods and chains. A water drain carries the seepage to the curb.

Send for prices and Catalog B-4.

Canton Foundry & Machine Co.
Canton, Ohio

Hurry it up!

Order!

WE CAN assure you prompt delivery on a Miami Trailer if we get your order in good season.

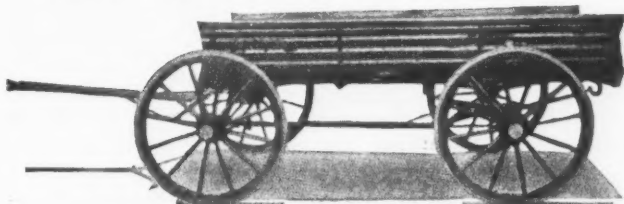
This Miami Trailer was designed and built for Contractors and Builders. Body of Ohio Oak, steel lined, double end gate dropping to floor level which permits the hauling of material up to twenty feet in length.

Special shock absorbing draw bar which protects your machine from all sudden shocks and vibration. Special constructed chassis that insures perfect trail with car.

The busy season is here and we are in position to make immediate shipments. Ask for prices and complete description of fourteen different models.

Miami Trailer Company

Troy, Ohio



Furnace Contracts



You can pile up a nice profit without interfering with your regular business by taking up our Agency Proposition for installing

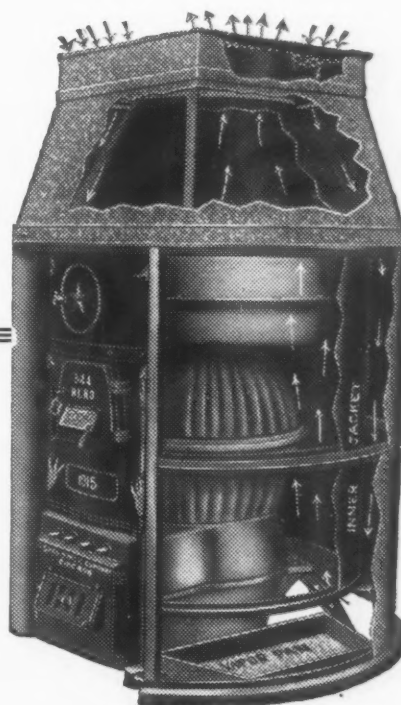
Hero Pipeless Furnaces

They are easily and quickly installed; they are the simplest, most practical furnaces for heating homes, stores, or halls; they represent an economy in installation as well as "First Cost;" and they are sure to give complete satisfaction to users.

Chas. Smith Company

57 W. Lake Street

Chicago, Ill.



You Can Take Hills On High Without A Knock

IF you will keep your motor free from carbon. That knocking in your engine—the difficulty you have climbing hills—poor pick-up—lack of power—noisy motor—pre-ignition—in fact 80% of engine trouble is caused by carbon. Clean it out

with

JOHNSON'S CARBON REMOVER

and your engine will run like it did the first 500 miles, quietly and full of "pep". And your gasoline consumption will drop from 12% to 20%.

You Can Do It Yourself

For 25c—five minutes' time—and with no labor you, yourself, can remove all carbon deposits. Simply pour an ounce of Johnson's Carbon Remover into each cylinder—allow it to remain from two to twelve hours and then drive your car 10 or 15 miles. You will be surprised at the wonderful improvement.

How It Works

Johnson's Carbon Remover does not eat the carbon, but releases it from the metal and softens it into a jelly-like, inflammable mass. Then, as the engine is operated, the mass burns, pulverizes and is blown out with the exhaust in powder form.

Use It Every 1,000 Miles

If you will use Johnson's Carbon Remover at regular intervals, giving carbon no chance to accumulate, you will automatically eliminate most valve trouble and your engine will always be at its highest efficiency.

If your dealer cannot supply you with Johnson's Carbon Remover use attached coupon.



S. C. JOHNSON & SON, Dept. A B 10 Racine, Wis.
I enclose \$1.00 for which please send me by prepaid express enough Johnson's Guaranteed Carbon Remover to thoroughly clean an ordinary four-cylinder motor 4 times.

NAME _____
ADDRESS _____
CITY & STATE _____
MY DEALER IS _____

Made and Guaranteed by
S. C. JOHNSON & SON
Racine, Wisconsin, U.S.A.

(Continued from page 146.)

general plans furnished by the war department. Later Mr. Moore and his estimators and draftsmen moved right down to the spot, being located in one of the larger compartments of the office building near everybody else. The purchasing department compiled group totals of each kind of material needed for the whole camp of, as at first designed, 622 buildings. Then it got busy with the telegraph and telephone and by mail. It received considerable help from the central and district advisory purchasing bureaus of the government, composed of members of various industries who banded together to organize their manufacturing capacity and delivery service. These government committees collected figures, locations and dates of the various sources of supply, totalled them up, and assigned to each cantonment tentatively the product of a given manufacturer on which it had options at a certain price. The contractor would examine the proposed order and source of supply, and in all probability give his assent by a formal order direct from him to the manufacturer. The government would then lend its prestige for a quick manufacture, loading and shipping of the goods. Besides, every manufacturer was glad to hustle the camp material along, and what is more he almost always worked at a small margin of profit. The government's aid helped a great deal, and the patriotic spirit helped a great deal, in getting the materials thru in fast time.

This sort of semi-official co-operation was extended toward all of the very large requirements of supplies, such as southern pine, of which 26,000,000 feet was needed. On the vast aggregate of smaller needs, however, the contractors had to work under the usual difficulties greatly multiplied. The adjoining country had to be scoured for sources of supplies, for factories able to turn out the goods wanted, for stores of goods accumulated in unexpected places, for facilities offered by jobbers and wholesalers who could sell and replenish their stock from markets with which they were in touch or could get in touch. Often small country jobbers would come to bat with a base hit in a tight pinch—perhaps some man hitherto unknown to the contractors' firm, whose location or reputation did not suggest that he had such a thing as a hit—that is, a carload of nails or a few hundred posts—up his sleeve.

It is obvious that one man could not do all the purchasing himself. Mr. Armstrong assigned hardware to one man, lumber purchases to another, plumbing to a third, heating to a fourth, electrician's supplies to a fifth. The lumber man ordered 3,000,000 feet of lumber in ten weeks; the hardware man gathered door knobs, hinges, nails, etc., for 1600 buildings. Each of these had as many assistants as he needed. Each was a practical man in his own field, knew its values, and had the benefit of advice from Mr. Church, the company's head purchasing agent who came down to Ayer at intervals.

(To be continued in the November American Builder.)

VENUS 10¢ PENCIL



"NO other pencil equals it for smoothness, uniformity and durability."



—That's the builder's view.

17 perfect VENUS black degrees from 6B softest to 9H hardest and hard and medium copying.

Look for distinctive VENUS finish!



FREE! This trial box with 5 VENUS Drawing Pencils, Holder, and VENUS Eraser sent FREE! Write for it.

American Lead Pencil Company
212 Fifth Avenue, New York
and Clapton, London, Eng.

A Grandfather's Clock

Like this in the Knockdown for

\$25

SPECIAL OFFER

Here is
Winter Work
You Can Turn to
GOOD PROFIT



Build Your Own Grandfather's Clocks with Our Help.

Any handy man with a few simple tools can build his own Grandfather's Clock and for \$25 make one so beautiful that he wouldn't trade it for one costing \$75 to \$100 at retail. You can turn your spare time to good account making them for your friends who will jump at the opportunity to buy such a magnificent clock at the amazingly low price you can sell them for. Thousands of others are doing it—why not YOU.

We Sell Complete Works as Low as **\$5.00**

We provide you with blue prints, instructions and finishing material—EVERYTHING needed to build and complete a Grandfather's Clock. The work is extremely easy and simple and mighty fascinating.

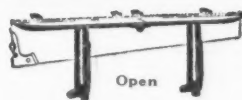
Write for Free Offer on Drawings, Etc.

Also for our catalog and other interesting literature. We have much of great interest to send you. Write NOW.

CLOCK COMPANY
1600 Ruffner St., Philadelphia, Pa.

CATALOG FREE
The most interesting and valuable book of its kind ever published. Write today

Unbreakable Steel Folding Saw Vises



Open



\$1.75 Prepaid

28 in. jaw, weight 4 lbs.



Folded

\$1.00 Prepaid

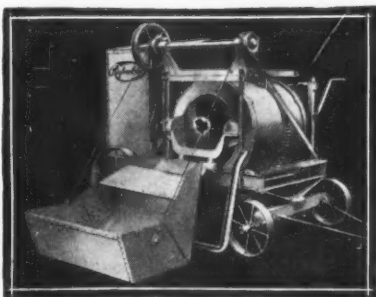
14 in. jaw, weight 2 lbs.

The 28 in. vise takes the full length of saw.

Buckeye Manufacturing & Foundry Co.

Successors to Buckeye Saw Vise Co.

9401 Lake Avenue, Cleveland, Ohio



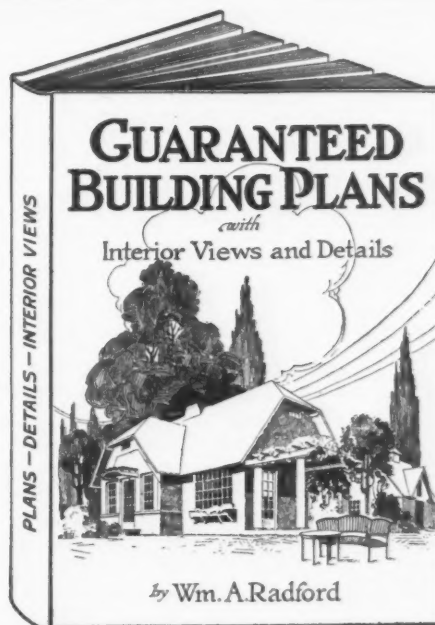
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The several recent improvements incorporated in our mixer makes it a wonderfully efficient machine, giving larger capacity in a lighter weight machine with a

corresponding reduction in price. Sizes: 3½, 5, 7 and 10 ft. capacity. Get our catalogs, prices and terms.

LIGHT WEIGHT—SACK SIZE—LOW PRICE

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150 Residences, 50 Farm Buildings

It is the most complete collection of House and Farm Building Plans ever published. The designs are all new and have been especially drawn for this book.

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American Builder, Chicago, Ill.



Why build a home of brick or stone for sake of permanence and then for its most conspicuous details use a column of wood which will split, check, rot or warp in five years' time at most?

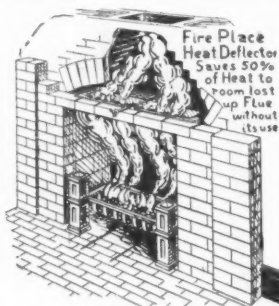
UNION METAL COLUMNS

"The Ones That Last A Lifetime"

They are as permanent as the brick itself, correct in every architectural detail and in keeping with the best in design. The shafts are open hearth steel, specially galvanized and rust proofed. Thousands of them are in use and approved by satisfied owners and architects.

Send for Book on Columns 96.

The Union Metal Mfg. Co., Canton, O.



Fire Place Heat Deflector Saves 50% of Heat to Room lost up Flue without House

EVERY fireplace should be provided with a heat deflector having a sliding damper operated by knob from face of mantel. Its cost is saved in mason's labor and 50% more heat.

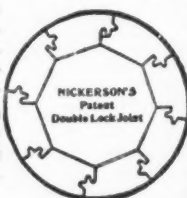
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irons, Fire-baskets, Fire-sets, Spark-guards, etc.
Heitland Grate and Mantel Co.
No. 136 N. Fifth St. Quincy, Illinois

THE BEST COLUMNS

for Porch, Interior and Pergola use the
NICKERSON Patent DOUBLE LOCK JOINT
THEY CANNOT COME APART

We Specialize on Detail-work. "Vignola" is our Standard for proportions when Architect's details are not furnished.



Clinch you Trade by giving them the very best Columns. Ours have the best Construction and correct shape.

All kinds of interior trim to detail.
Write for Catalogue No. 4.

NICKERSON MFG. CO.
KNOXVILLE - TENNESSEE
Members Knoxville Builders' Exchange

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN BUILDER

HORNET MANTELS

The salability of any house is doubled when you show the purchaser the beauty and comfort of

Hornet Mantels

They add 100% to any interior.

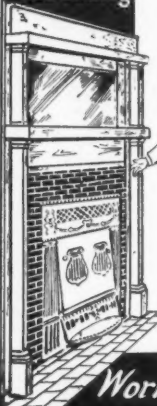
The model shown here gives an idea of our line and prices. It is offered in selected Oak or Birch, Mahogany finish, Piano Polish. Stands 7 feet high. Note beveled mirror, enameled tile and grate.

Priced at Only \$29.00

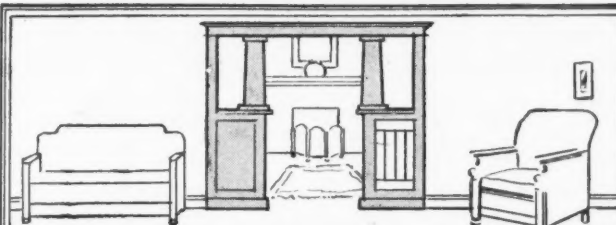
Study our full line of Gas Logs, Fire-sets and Screens in helpful catalog. Gives directions for installing. Get this book for future reference.

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One of 40
styles
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Our Big
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World's Largest Mantel House



DISTINCTIVE WOODWORK

We have been supplying the building field with the finest grille work for the past 23 years—COLONNADE OPENINGS, PARLOR COLUMNS, CONSOLES, SIDE-BOARDS and GRILLES of all kinds.

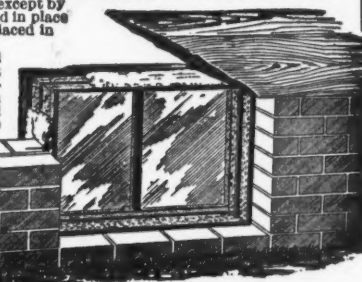
You will be interested in our catalog. It contains many handsome, strictly modern designs that will meet with your instant approval. Ask for CATALOG No. 21.

CHICAGO GRILLE WORKS, Loomis and 21st St., Chicago, Ill.

Famous Chief Cellar Windows Will Not Stick, Warp or Rot

The solution of the cellar window problem—a modern, 20th Century Cellar Window made right for service. Made of steel-window, casing and all. No rotting, shrinking or swelling. Fits perfectly all the time. Trouble proof, easy to open and close, leak-proof and fire-proof. Will not rust. Nothing about it to wear out. Fitted with special, inside steel latch—cannot be opened from outside except by breaking the glass. Glass held in place without putty—can be replaced in minute's time.

Chief Cellar Windows will please your customers. Cost no more than wooden windows—last twice as long. Can be painted any color desired or left unpainted. Give more service and better service. Write for complete description, prices and terms.
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Lowest installation cost

Easily
installed in
either old
or new
buildings
by any good
carpenter



SORLIEN CEILING BED

The Sorlien Ceiling Bed is the ideal bed for sleeping porches, apartments or houses of any size. Either closed or open it leaves the ceiling complete. The Sorlien can be installed for from 50% to 90% less than any other disappearing bed.

Install the Sorlien Ceiling Bed. Write for catalogue today. The Sorlien sells for \$40 00 f. o. b. Minneapolis.

Sorlien Ceiling Bed Company

410 Sixth Ave. South

Minneapolis, Minn.

The most profitable Side Line for all Winter
Business is

FLEXOTILE FLOORING AND STUCCO

Write us today for full
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FLEXOTILE FLOOR COMPANY
ROCKFORD, ILLINOIS

You Can't Afford to Be Without "Nice" Liquid Filler

BECAUSE it means an economy of both time and material to you.—It requires little, if any, sand-papering and dries hard in 8 to 12 hours, allowing one-coat-a-day work to be done with safety.—It will enable you to make first-class jobs on close grained woods with one coat of filler and one coat of varnish.—It will hold out varnish better than shellac and will cover 800 sq. ft. to the gallon.—It will make the very best Flat Stain by simply shading with colors in oil or a varnish stain by adding a little good mixing varnish. It is very valuable as a first coat for floors to bring them up to an even surface.—It helps the user over many a difficult place and adds to the quality of his work.

Be sure you get the genuine "Nice" Filler. Ask your dealer to show you Nice or write for our prices and catalog of varnishes, paints, coatings, fillers, enamels, etc.

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Philadelphia, Pa.



Old Floors Changed to New

Quickly, and with but little expense, with Asbestone. We send full instructions free.

You can earn a nice income, on the side, laying Asbestone over the old floors in your town. It makes floors perfectly new and sanitary. Wears and looks like tile, yet is warm and resilient, and costs less than half as much. Vermin-proof, fire-proof, seamless. Ideal for Sun Parlors, Kitchens, Halls, Bath Rooms, etc.



Look up some reflooring job and send us the dimensions. We shall then send prices, samples, and full particulars.

Franklyn R. Muller & Co.
7104 Madison Street, Waukegan, Ill.

Also ask about our Magnesium Stucco

C.W.C. WATERPROOFING PRODUCTS

YOU CAN USE THEM BECAUSE—

The nine C. W. Co. Products give perfect and permanent waterproofing protection for every class of building construction.

Ceresit waterproofs basements, cisterns, pits—wherever water is to be kept in or out. Cem-bric is a waterproof decorative coating for brick and cement surfaces, and for concrete floors. Indurite hardens, dustproofs, oilproofs and waterproofs concrete floors.

The complete Ceresit line is described in "The Ceresit Waterproofer" for September—it's just off the press and will be sent free on request.

If our literature is not reaching you, send in your name and get on our mailing list.

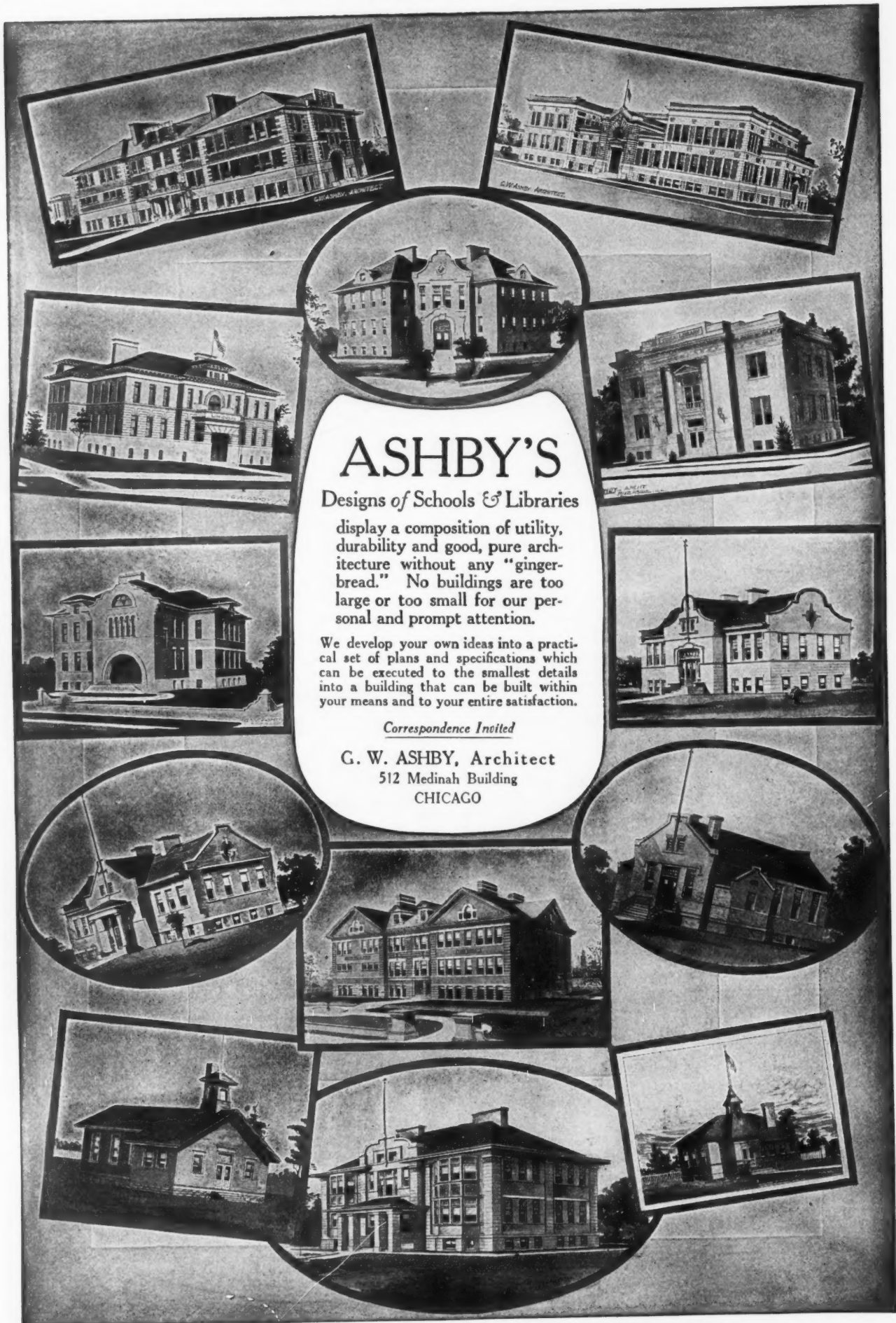
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Ceresit Waterproofing Co.

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ASHBY'S
 Designs of Schools & Libraries

display a composition of utility, durability and good, pure architecture without any "gingerbread." No buildings are too large or too small for our personal and prompt attention.

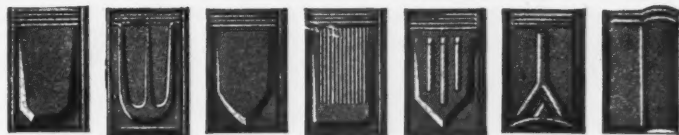
We develop your own ideas into a practical set of plans and specifications which can be executed to the smallest details into a building that can be built within your means and to your entire satisfaction.

Correspondence Invited

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WALTER'S & COOPER'S METAL SHINGLES

*The
Shingles
That
Last*



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Shingles
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The Most Complete Line of Designs

The Best Quality Workmanship and Finish

Made in Painted Tin or Genuine Re-dipped Galvanized Tin

SOLD AT THE RIGHT PRICE

May we send you full-size samples and prices?

NATIONAL SHEET METAL ROOFING CO.

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JERSEY CITY, N. J.



Roofed with
Winthrop Tapered
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The ONLY Kind
Tapered Like Wood

R. G. Castleman, 120 W. 46th St.,
Bayonne, N. J., writes:—

"I am enclosing a small picture of our house, which is claimed to have the finest appearing roof in the vicinity. We used red Winthrop Tapered Shingles on the roof and gray on the sides. The house was built in 1915 and there is not a sign of wear on the roof."

Contractor Agents Wanted. Write for sample shingle.

THE BECKMAN-DAWSON COMPANY
Asphalt Shingles

Factory: Argo, Ill.

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**"SIGNED LUMBER
IS SAFE LUMBER"**

INSIST ON TRADE-MARKED "TIDE-WATER"

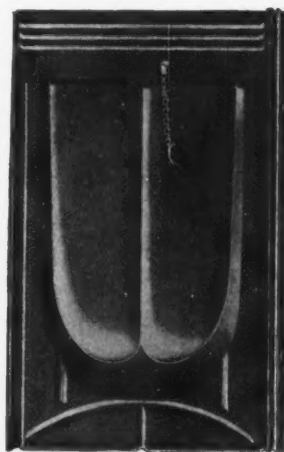
CYPRESS

LUMBER—BECAUSE IT'S "THE
GENUINE WOOD ETERNAL".

AND LASTS—AND LASTS—AND LASTS—AND LASTS

Look for this on every board—

Accept no Cypress without this mark.



Edwards
Metal
Shingles
Will Out-
last Your
Building

Rot-Proof
Fire-Proof
Lightning-Proof

We want a good, live man to represent us in each locality—to push our surpassing line of Metal Shingles and other up-to-minute metal roofings.

WRITE US TODAY ABOUT YOUR TERRITORY. Our business is growing so rapidly that it is necessary to have an agent in every community. The territory is going fast. One day's delay may mean that some one else will be given your territory. Don't delay. Write today for our special Agents' Proposition.

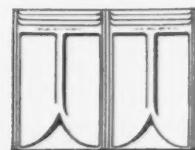
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World's Largest Manufacturers of Metal Roofing, Metal Shingles, Metal Spanish Tile, Metal Ceilings, Metal Garages, Portable Buildings, Metal Lockers, Rolling Steel Doors, Partitions, etc.

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**CORTRIGHT
METAL SHINGLES**

are storm proof—rain—ice—wind—fire
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Roofs laid 30 years ago, as good as new
now. A little paint, occasionally.

Cortright Metal Shingle roofs last as a
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Cortright Metal Shingle Roofing.

Write for our book "Concerning that Roof."

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FREE SERVICE

For Builders

A ceiling design of Steel for a butcher shop would be hardly suitable for a bank or a theatre, yet if only a few designs are available such a mistake is liable to happen. To prevent such errors we offer Kanneberg Service Free of charge to suggest appropriate designs in harmony with the surroundings at the most reasonable prices. We do not need an architect's drawing—the roughest sort of a layout will do. Send us a drawing of your next job and let us show you the possibilities of Decorative Sheet Metal. It won't cost you a cent or obligate you in any way.

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We also manufacture Metal Shingles, Roofing, Store Fronts, Skylights, Ventilators, in fact everything in Sheet Metal.

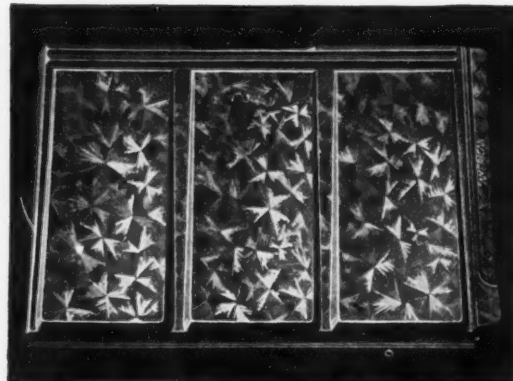
The Kanneberg
Roofing and
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Robin Ct.,
S. E.
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Come to Us for
Everything in Sheet Metal

AMERICAN Metal Shingle

Fire—Water—Lightning Proof



The Last Word in Metal Shingles

Protective Durable Economical

Effective in Appearance

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Especially adapted for Residences, Bungalows, Churches, Schoolhouses, Chapels and Buildings in general

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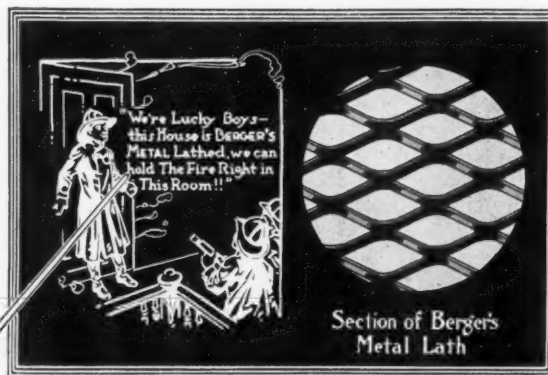
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MILWAUKEE, WIS.

*Blackboard talks
by the professor*

No. 7—

**"Make
Buildings
Safer"**



Section of Berger's
Metal Lath

"BY using only fire resisting lath in your buildings, you assure the owners of safety and permanency.

"Most fires start from some insignificant blaze, which, if checked in time, would prevent serious damage and loss of life.

Berger's Expanded Metal Lath

provides a secure foundation to receive the plaster for walls, ceilings and partitions, as it reinforces the plaster over the entire surface.

"A blaze occurring will be confined to the room in which it originates and can be extinguished before it gets beyond control.

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Branches: Boston New York Philadelphia Chicago St. Louis
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Houses of Stucco built with Sykes Metal Lath are both economical and strong. It is advisable to study metal laths; those who know choose the famous

SYKES EXPANDED CUP METAL LATH

SELF-FURRING

Sykes is extra strong and rigid; it is heavier than others of same gauge because cut with wider strands. Easily applied and impossible to apply wrong.

The Sykes Cup formation assures rigidity; it saves time, labor and material. No furring strips are required in applying Sykes Metal Lath. It is the best lath for Interior as well as for Exterior work. It is approved by U. S. Government for Post Office work, and by architects and contractors.

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Build for Permanency



HUNDREDS of buildings, large and small, throughout the country, stand as monuments for the efficiency of

BERGER'S *Metal Lumber*

Its use means more substantial structures which will not weaken under the burden of attacks by time, fire, moisture and rodents—structures which exemplify the modern trend in building for permanency and eliminating the periodical upkeep expenses always necessary where lower first cost materials are used in construction.

Berger's Metal Lumber adds to the life of a building and is adaptable for use in floors, walls, roofs and partitions. Easily and quickly erected.

Send for Bulletin 12 A. B.



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Branches: Boston New York Philadelphia Chicago
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Export Dept.: Berger Building, New York City, U. S. A.



I-Joist

WANT THE BEST LONG-LEAF PINE THAT GROWS?



"THERE'S A DIFFERENCE"



Specify "Bogalusa"

APPRECIATE that "Bogalusa" branded on every stick means "Automatic Safety for the Buyer"? **REALIZE** that the Strongest and Every Way Best Structural Wood in the World's Markets is Our Own Native Product, and that "BOGALUSA" is the symbol of the very best of

Choose Long-Leaf Pine

"THERE'S A DIFFERENCE"

Dependable Dimension Stock—Heaviest Structural Timbers—Every Piece Identified.

Particular about integrity of Manufacture, Grading and Count? Understand the value of "every foot a foot"? For positive assurance of satisfaction simply state that every stick must be guaranteed by the simple word "BOGALUSA." The Great Southern Lumber Company, operating the largest lumber manufacturing plant in the world, places its entire responsibility and resources at your command when you put a "Bogalusa MUST" on your order. Don't ASK for "Bogalusa"—but TELL them "Bogalusa" and "nothing but."

"THERE'S A DIFFERENCE"

Your request (on business stationery if convenient) will bring the **Bogalusa Book**, "a liberal education on the correct and economical use of long-leaf Pine," and including all official gradings. **THE LARGEST SAWMILL IN THE WORLD DESIRES TO SERVE YOU.** May we?

GREAT SOUTHERN LUMBER CO.

1600 Fourth Avenue

BOGALUSA, LA.

SIDEWALK LIGHTS are an asset to any building, as they make the basement habitable without the expense of artificial lighting.

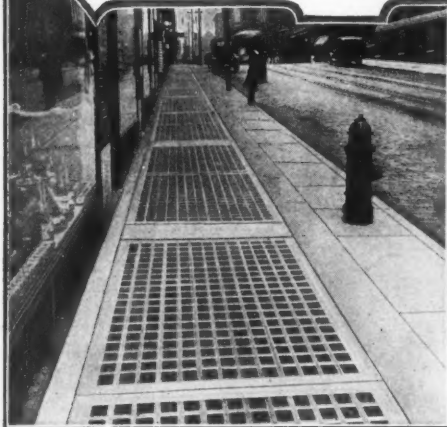
BERGER'S
Raydiant

system has an **ADDED ASSET**—the easy replacement of broken glass—which, in addition to its many other advantages, makes it the ideal system for permanently satisfactory results.

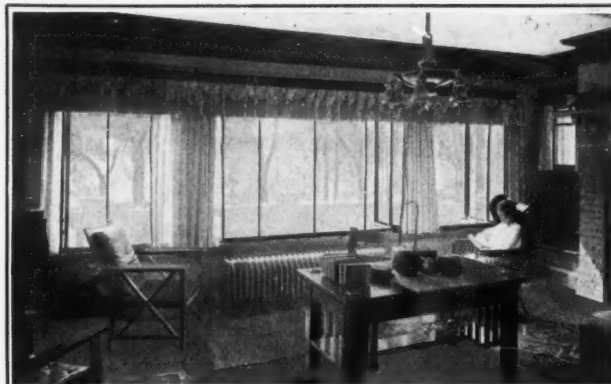
Our attractive catalog completely covers every phase of Raydiant Construction—embodying information of real value to you. Want a copy?

See Sweet's, pages 834-837 and
Write for Catalog T. A. B.

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Berger's "Raydiant"
Sidewalk Lights at
Eight and Wyandotte
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WHITNEY Overcomes the Faults CASEMENT of Hinged Casements WINDOW HARDWARE

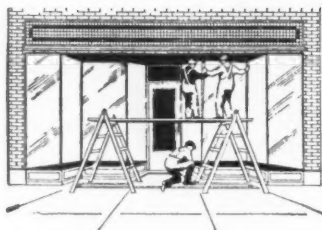
IT does away with rattling, slamming shut, sticking and drafts. It makes casement windows that are tight and storm-proof when closed, always work easily, open outward out of the way of draperies and shades—outside of sash can be washed from inside of room.

We manufacture only the patented hardware—in 3 grades to suit all requirements—also screen fittings. If you cannot get the sash locally, we will quote you on your requirements complete, f. o. b. Minneapolis.

Our Service Department has some interesting and profitable information on remodeling work. Write for it. They will help you, without charge, to adapt Whitney Windows to any unusual requirements. Interesting portfolio sent upon request. Special prices to contractors and builders where we have no dealers.

WHITNEY WINDOW CORPORATION
309 S. Fifth St. Minneapolis, Minn.

PROFIT



Are You Getting Your Share?

The business of remodeling Store Fronts is bigger this fall than ever before. Every retailer wants a new Front, and "Desco" makes it possible for you to secure many contracts. It is simple to order, simple to install and costs less than you've been paying. We sell direct to you. Send today for details and prices of "Desco"—be ready to quickly close the next store front job.

Desco
METAL
STORE FRONTS

DETROIT SHOW CASE COMPANY

(28 successful years of experience)

491 Fort Street, West

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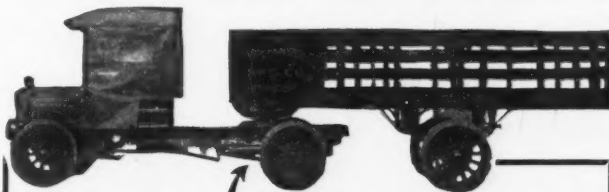
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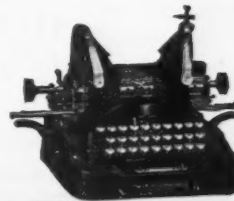
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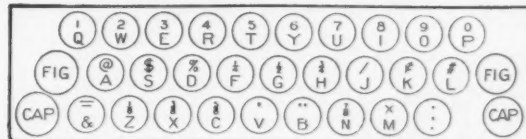
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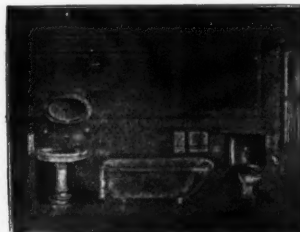
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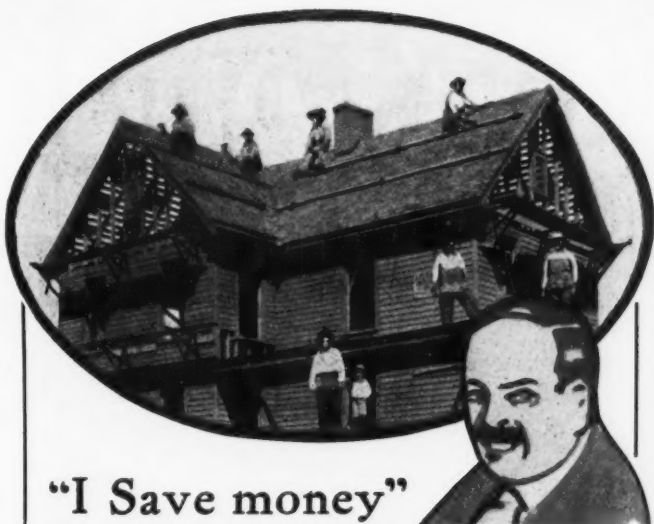


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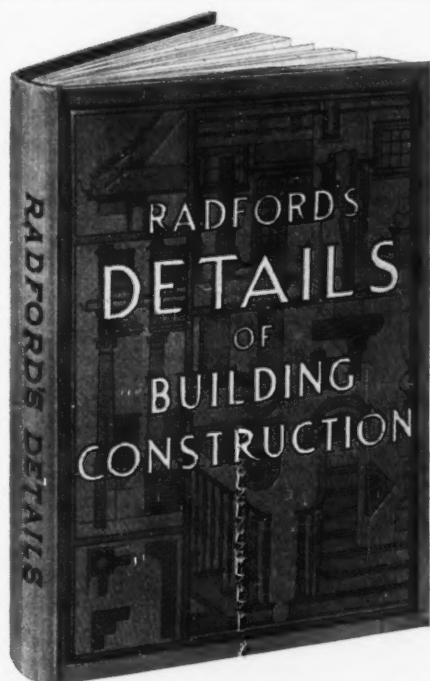
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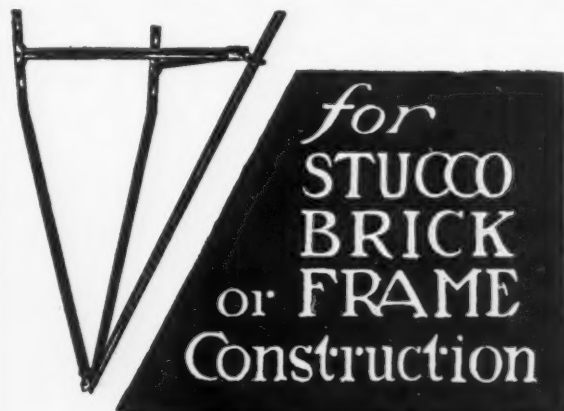
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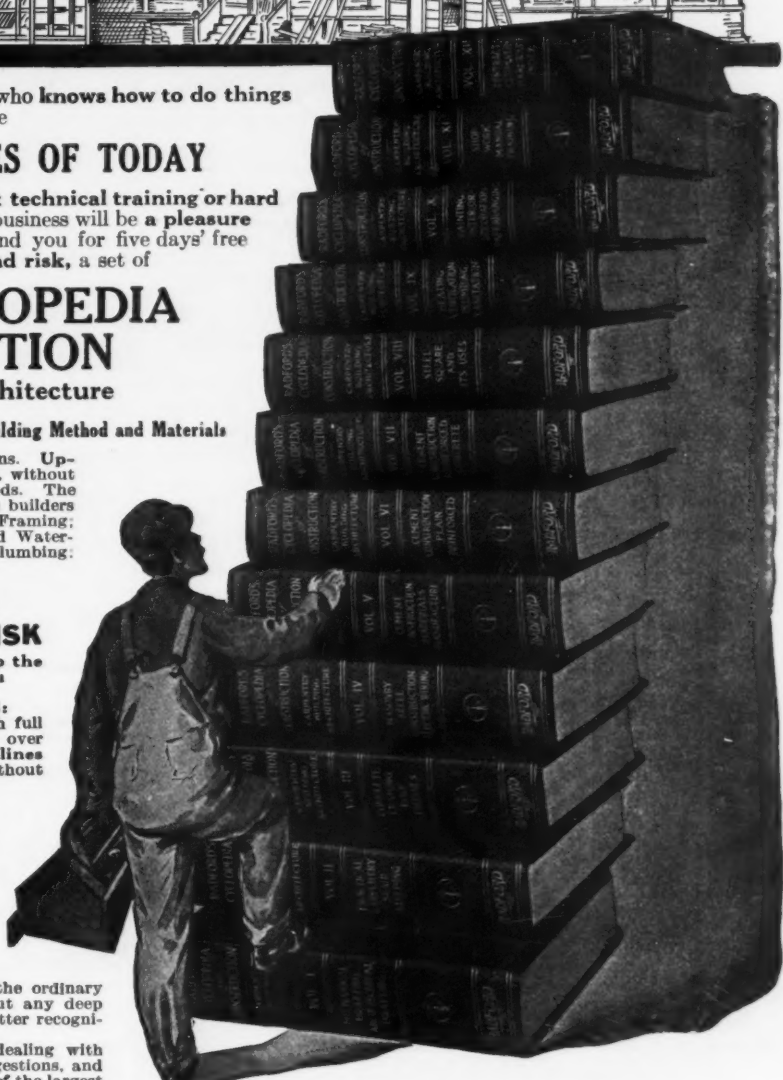
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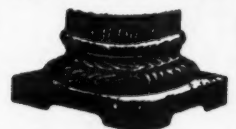
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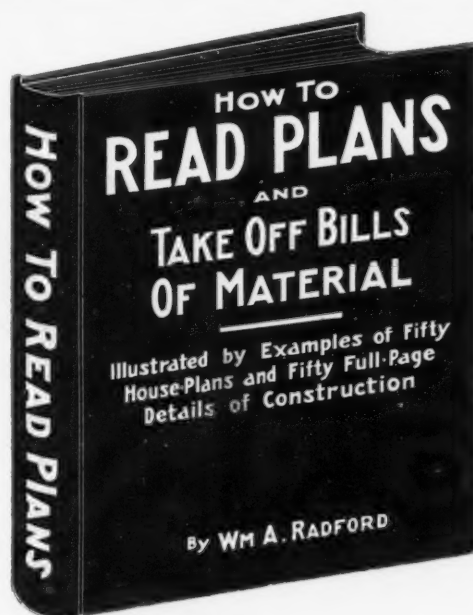
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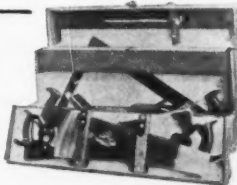
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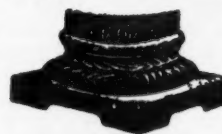
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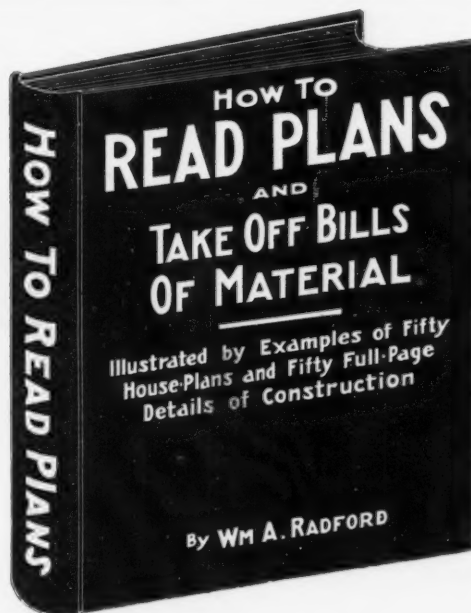
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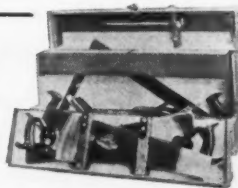
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